

The Climate of Union:
An Environmental History of the Anglo-Scottish Union, circa 1660-1707

By

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ABSTRACT

The Climate of Union posits that climatic instability and environmental change during the last third of the Global Little Ice Age, a period of climatic instability (circa 1570-1720), fundamentally influenced economic activities, political thinking, and governmental decision-making during the negotiations for the 1707 Union between Scotland and England. It emphasizes the conjuncture and contingency of events at the turn of the eighteenth century that brought both Scotland and England to the negotiating table, and it builds upon the narrative of the General Crisis, a period of global social and political turmoil in the seventeenth century. From the perspective of early modern global history, it positions Scotland within a North Seas World and shows how environmental upheaval, economic decline, and geographical reorientation of a Dutch-focused North Seas World encouraged enterprising Scots to begin shifting their focus towards a much larger, British-focused Atlantic World focused on colonial trade by the early eighteenth century. Using an interdisciplinary approach emphasizing climatic reconstructions utilizing new data, a close examination of the North Seas fishing industry, and an oceanic world studies approach exploring Scotland's economic and geopolitical relationship to the rest of the North Seas and Atlantic Worlds, this work highlights the disastrous conditions that impacted this region between circa 1660 and 1707. It explores why union—and the use of diplomacy and parliamentary debate to build something new—provided an attractive solution to the sense of crisis among political elites in both Scotland and England, particularly in the wake of the Great Storm of 1703, allowing them to avoid another confrontational war in the midst of the War of Spanish Succession. In sum, *The Climate of Union* demonstrates how environmental, economic, and social pressures influenced Scotland and England to join together based upon shared

transnational concerns, and how these pressures were more easily buffered when part of a larger economic and political union—a long-standing consensus now gravely threatened by Brexit.

Keywords: Global Little Ice Age, North Seas World, Atlantic World, Fishing Industry, Climate Change

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INTRODUCTION

The world is in a climate crisis with average temperatures currently headed towards a change of at least 1-2° C different from their 1961-90 averages.¹ Although this change may seem small, the last time global temperatures were this far removed from recent averages was during the period commonly known as the Little Ice Age, which gave rise to what historian Geoffrey Parker has called a “Global Crisis.” The Global Crisis is an extension of the “General Crisis” literature, initiated by Hugh Trevor Roper and Eric Hobsbawm, who began utilizing the term “General Crisis” in the 1950s to describe the disastrous political, economic, and social conditions of seventeenth-century Europe.² In the years after these two works, historians like Geoffrey Parker began to provide more examples of these trying times during the seventeenth century, expanding the narrative outside of Europe as well. This culminated in Parker’s later work, the “Global Crisis,” which saw the seventeenth century as a time of widespread warfare, revolts, rebellions, disaster, destruction, and death.³ One addition Parker and several subsequent historians have to this narrative was adding a new element to the seventeenth century crisis; climate.

Even though the Anglo-Scottish Union occurred over 300 years ago, two of the biggest challenges in Scotland today focus on the continuing role and advantages of staying a part of a union, be it European or British, and how to control, develop, and even protect Scotland’s

¹ IPCC, *Special Report: Global Warming of 1.5°C* (Switzerland: IPCC, 2018).

² E. J. Hobsbawm, “The General Crisis of the European Economy in the 17th Century,” *Past and Present* 5 (1954): 33-53; H. R. Trevor-Roper, “The General Crisis of the 17th Century,” *Past and Present* 16 (1959): 31-64.

³ Geoffrey Parker, *Global Crisis: War, Climate Change and Catastrophe in the Seventeenth Century* (New Haven: Yale University Press, 2013).

resources in a changing environment. In a September 2014 referendum, Scottish citizens voted to remain part of a union with England, Northern Ireland, and Wales. In a record turnout for any election in Scotland, 55% of voters supported the Union (two years later they voted to remain a part of the European Union).⁴ The large turnout and close margin of the vote reveals that the debate over the Union is still just as contentious and relevant today as it was over 300 years ago. Additionally, in 2011 and 2013, the Scottish Parliament issued its first reports on the climatic and environmental outlook for Scotland. This featured a close examination of climate change and the effect that this will have on Scotland's environment, economy, and people, and it specifically highlighted the effect that global understanding and preservation of the environment has on Scotland's environment and its people.⁵ This interaction between environment and culture is just as important when examining union debates today as it was in 1707.⁶

The events described in this dissertation occurred during the last third of a new periodization which I am referring to as the Global Little Ice Age circa 1570-1720. A period of marked climatic instability throughout the globe, which served as both a background and motivating factor for broad political, economic, social, and cultural change. Although the early modern period saw several periods of climatic fluctuations in many places, often referred to as the Little Ice Age, or what this work calls the conventional Little Ice Age, the Global Little Ice Age emphasizes when these effects were felt widely across the globe. While attempting to explain why societies in the seventeenth century rebelled more frequently, Parker emphasized

⁴ "Scottish Independence Lord Ashcroft Poll" *The Guardian*, London, September 20, 2014.

⁵ The report itself and the smaller summary of the report both discuss the effect that a changing climate has on agricultural production, and fishing industries within Scotland. For example, the Review of Common Fisheries Policy (2013) stressed the importance of flexibility and adaptability to the dynamic nature of changing ocean environments.

⁶ See Low Carbon Scotland, *Meeting the Emissions Reduction Targets 2013-2027: The Second Report on Proposals and Policies*, 2013.

the importance of climatic change in creating circumstance that inspired political conflict and social changes. The general idea of the Global Crisis was that the seventeenth century saw political, social, and economic instability, warfare, and rebellion throughout much of the globe.⁷ Although for Parker, the Global Crisis ends by the 1670s and he notes how life began to get better in Britain after 1688.⁸

Following the periodization of the Global Little Ice Age, circa 1570-1720 is perhaps a better way to delineate the Global Crisis since it takes into consideration global climatic trends and their societal impacts. After all, there were still plenty of crises in the last third of the seventeenth century. For instance, southwest England saw “violent rain” during the summer and autumn of 1672, which washed away soil causing a “barrenness [sic] and scarcity of corn” that resulted in great mortality for humans and cattle alike. There was also a “strange frost” that knocked over and damaged trees across the country that was “more strange than I have found in any English Chronicle.”⁹ In Genep, Netherlands, June 1697 saw “the coldest weather that ever was found at this season [including] ... great showers of hail all this day and we have had a great deal of raine.”¹⁰ In Glasgow, Scotland, the constant [summer] rains turned the harvest of 1698 into a “waste.” This caused William Cochrane to fear an all-out famine and “calamitous [sic] time.”¹¹ These are just a few examples that help show the Global Crisis extending out into the eighteenth century.

⁷ For more on the term “Global Crisis” see Parker, *Global Crisis*, xv-xxix.

⁸ Parker, *Global Crisis*, 625-9, 640.

⁹ Philosophical Transactions of the Royal Society of London, *The Copy of a Letter from Somersetshire Concerning a Strange Frost, Which Hath Lately Done Much Hurt about Bristol; Together with Some Useful Hints Suggested upon That Occasion*, 1672/3, 7, [5138-5142].

¹⁰ [N]ational [R]ecords of [S]cotland, GD406/1/6402, Charles, earl of Selkirk, Genap [Genep], to the earl of Arran, Jun. 1697.

¹¹ NRS, GD406/1/4279, William Cochrane, Glasgow, to the duke of Hamilton, 28 Sep. 1698.

There are four larger arguments, or findings, in this work, which center upon the environmental-cultural interaction and the Anglo-Scottish Union. The first is that the 1707 Anglo-Scottish Union had crucial environmental roots, which directly influenced the positions taken by Scottish and English politicians in favor of Union between 1703 and 1707. This environmental perspective on the Union has largely been ignored in Union histories. The second is that Scotland's experience during the whole seventeenth century, but especially between circa 1660 and 1707, was an essential regional manifestation of the General Crisis and Global Little Ice Age. While Scotland was unique on choosing union over rebellion, that did not mean that this choice was universal within Scotland, nor is Scotland's decision for union any less a part of the Global Crisis. The third is that historical contingencies were essential to the adoption of the Articles of Union in 1707, especially the timing of the Great Storm of 1703 and outbreak of the War of the Spanish Succession (1701-14), which provided a final tipping point that drew England to the negotiating table. The fourth argument is that this longer period also saw Scotland's transition away from a narrower, Dutch-focused North Seas World into a British-defined Atlantic World, a growing British world Empire, and with it, a British-focused economy.

In relation to this dissertation's first key finding, at least a sixth and as much as two-fifths of the Scottish Parliament took positions that can be clearly traced to environmental concerns. The influence that this had on specific members varied, of course, but at least 70 members of the Scottish Parliament can be identified as having been tangibly influenced by the environmental changes and extremes of the late seventeenth century. To be clear, I am not arguing that these environmental influences are responsible by themselves for the Anglo-Scottish Union in 1707, but that these environmental causes deserve to be at the center of the historiographical discussion of how the Union came to be, alongside other dimensions of politics, religion, and economics.

Politics, economics, and occasionally religion have dominated Union discussions for over three centuries.¹² At times these historiographical debates have taken on a strong Scottish nationalist undertow.¹³ Party politics at the beginning of the eighteenth century play a significant role in the political arguments for the origins of the Union. Three of the larger political groups in Scotland at the beginning of the eighteenth century, the Jacobites, the Cavaliers, the Country Party, and their supporters claimed that the Union ruined hundreds of years of independent Scottish rule. Much of this narrative was rooted in the politics and even religion in the early eighteenth century, the high-water point for so-called Whiggish histories of England, but after their respective declines, a nationalist perspective questioning the Union largely disappeared from the discussion.¹⁴ By the end of the eighteenth century, however, Union came to be seen by most commentators as a benefit to Scotland, both economically and socially, and for much of the next two centuries Union was an accepted part of Scottish life that brought many improvements in Scottish society.¹⁵ During the nineteenth and for much of the twentieth century, Union histories often reflected this positive reception of the Union in whiggish narratives relating the benefits of Union to far-reaching innovations of the late eighteenth century such as

¹² Allan I. Macinnes has a thorough overview of these trends in his *Union and Empire: The Making of the United Kingdom in 1707* (Cambridge and New York: Cambridge University Press, 2007), 12-53.

¹³ See Colin Kidd, *Union and Unionisms: Political Thought in Scotland, 1500-2000* (Cambridge and New York: Cambridge University Press, 2008), see especially 257-310; Alasdair Raffe, "1707, 2007, and the Unionist Turn in Scottish History," *The Historical Journal* 53 (2010): 1071-83.

¹⁴ Clare Jackson, "Conceptions of Nationhood in the Anglo-Scottish Union Debates of 1707," *The Scottish Historical Review* 87 (2008): 65, 76; Herbert Butterfield, *The Whig Interpretation of History* (New York: Norton, 1965).

¹⁵ See Kidd, *Union and Unionisms*, 257-300.

industrialization, the improvement of the Scottish economy and society, and the participation of Scots in a new global empire.¹⁶

It was not until the second half of the twentieth century when Scottish nationalism and separatist Scottish politics reemerged that Union again came under more regular scrutiny and Union and Unionism again became synonymous with anti-English thought, or at least a revision of Unionist ideas. Politics remained important in several Union historiographies like those by William Ferguson and P.W.J. Riley. Ferguson unapologetically saw Union as tactful political jockeying, focusing on the role of the English Court, Scottish politicians and political parties, and political bribery.¹⁷ Riley too saw Union accomplished through political maneuvering, especially by short-sighted and self-interested politicians.¹⁸

This more recent period also saw the rise of the Scottish National Party and the deindustrialization and decline of the Scottish economy, which paired with the discovery of North Sea oil and the economic independence it seemed to offer, all contributed to a decline of support for the Union, and reopened the debate on its importance to Scottish history.¹⁹ Given the topic of this study, it is only fitting that the discovery of North Sea oil, a vast new natural resource, helped to bring about a change in the landscape of the Union debate. Most recently this appeared during the 2014 Scottish independence referendum and then again during the more recent Brexit discussions, which also highlighted party politics and economic discussions.

¹⁶ See P. H Scott, *Andrew Fletcher and the Treaty of Union* (Edinburgh: J. Donald, 1992).

¹⁷ William Ferguson, *Scotland's Relations with England: A Survey to 1707* (Edinburgh: Donald, 1977).

¹⁸ P.W.J. Riley, *The Union of England and Scotland: A Study in Anglo-Scottish Politics of the Eighteenth Century* (Manchester: Manchester University Press, 1978).

¹⁹ Alasdair Raffe, "1707, 2007, and the Unionist Turn in Scottish History," *The Historical Journal* 53 (2010): 1078; Iain McLean and Alistair McMillan, *State of the Union: Unionism and the Alternatives in the United Kingdom Since 1707* (Oxford: Oxford University Press, 2005), 112-114.

While not entirely absent from the political perspective, the economic perspective has also taken a large space in Union historiography. Much of this debate centers on the poor state of the Scottish economy at the beginning of the eighteenth century and the ‘Equivalent’ or the £398,000 paid to Scotland by the English government after the Union took effect to cover Scotland’s share of past and future English debts. Today, this would amount to over £10,270,000,000 in currency. Part of this payment to Scotland was also to cover the losses from the failed Darien expedition that attempted to set up a trading colony in present day Panama, and because of this, one common theme was that Scottish representatives sold out their country to England.²⁰ Robert Burns even went so far as to memorialize this in a lyric claiming that the Union was “bought and sold for English gold” in his 1791 “Such a Parcel of Rogues in a Nation.”²¹ Even during Union negotiations, pamphlets expressing shock at the passage of the Union questioned who actually received the Equivalent: the Scottish economy and industry, Darien investors, or the Union negotiators, themselves? This line of reasoning became more common, especially after George Lockhart’s *Memoirs* (1714) suggested that Scottish Union representatives accepted bribes from the Royal Court.²² In its early years, when Union was

²⁰ Commentaries on the Union utilized this argument beginning in 1707. Iain McLean and Alastair McMillan have resolved this argument by tracing the voting records of members of the Darien Company and argued that they were just as likely to vote against a union. See McLean and McMillan, *State of the Union* (Oxford: Oxford University Press, 2005), 43, 60.

²¹ See Robert Burns, *The Poems and Songs of Robert Burns* (New York: Collier, 1937).

²² George Lockhart and Daniel Szechi, *'Scotland's Ruine': Lockhart of Carnwath's Memoirs of the Union* (Aberdeen: Association for Scottish Literary Studies, 1995). Christopher Whatley argued that the £20,000 distributed to Scotland from England, and the £13,000 of that that went to Queensberry, the Queens Commissioner, was commonly done to pay debts accrued by serving in parliament. While some Scottish MPs received funds, it was not nearly enough to sway the tide of voting. See Whatley, *Bought and Sold for English Gold? Explaining the Union of 1707* (East Linton, East Lothian, Scotland: Tuckwell Press, 2001).

unable to provide immediate benefits for a sizable portion of the Scottish populace, anti-Union arguments would reference the Equivalent.

The most recent trend in the historiography of the Union blends many of these perspectives to align closely with championing those who initially supported the Union, based upon a reexamination of the voting records of the Scottish Parliament and their linkage to trends in the Scottish economy. Works by Christopher Whatley, Colin Kidd, Derek Patrick, Michael Fry, Ian McLean, Alan I. Macinnes, and Alastair McMillan argue that the Union was primarily the result of a series of negotiations, particularly by Queen Anne's representatives, and that its supporters in both England and Scotland came to believe that supporting a union was in both their personal and their respective countries' best interests—be they economic, political, or religious; the degree of this varies with each author.²³

Even though the extant Anglo-Scottish Union historiography encompasses a wide range of topics, within these works there are only brief mentions of the environment. While historians have often acknowledged the importance of climatic and environmental aberrations to Scotland at the end of the seventeenth century, none has fully explored how these aberrations might have shaped or influenced the Union debates. In short, Scottish environmental historians have not studied the Union, and Union historians have not studied the environment.²⁴ The closest to

²³ This trend focuses more heavily on economic and religious interpretations of the origins of the Union. Alasdair Raffe, "1707, 2007, and the Unionist Turn in Scottish History," *The Historical Journal* 53 (2010): 1078; Fry is a slight outlier here as he is more pessimistic claiming that the Union debates were settled before they occurred and what was negotiated was for self-interest of Scottish Parliamentarians who had economic opportunities in English businesses. See Michael Fry, *The Union: England, Scotland and the Treaty of 1707* (Edinburgh: Birlinn, 2006), introduction.

²⁴ Historical geographers have also had a limited role in the work of the Union, even though 1707 serves as a focal point in the histories of Scottish geography. A well-known work by a historical geographer covering the Union is Charles Withers, *Geography, Science, and National Identity: Scotland Since 1520* (Cambridge and New York: Cambridge University Press, 2001);

bridge this issue has been Christopher Smout. In his works on environmental history, though, Smout does not explicitly discuss the Union, but rather examines changes over the *longue durée* moving into the era of industrialization.²⁵ While some historians, most recently Christopher Whatley in *Scots and the Union* (2006), have begun to look more carefully at these environmental causes, it generally comes as an aside when discussing other factors, like the Scottish economy, and much of this environmental discussion is limited narrowly in time to the late 1690s.²⁶ By limiting their analysis to this small window, historians have missed important contextual information regarding how both longer-term environmental changes and shorter-term environmental extremes within Scotland might have directly influenced Union voting. These environmental changes and extremes generated contingencies that helped form historical conjunctures to which humans responded.

Fundamental to this work's argument and to this study is the reconstruction and analysis of climate-induced environmental change, which includes an examination of the timing and magnitude of environmental changes and how societies reacted to these changes—in other words, a historical study of the intersection of climatic and environmental change with human agency. This dissertation explores responses to causal forces within the environment such as weather and climate, and how those responses have shaped societies. This does not mean that

see also David Turnock, *The Historical Geography of Scotland Since 1707: Geographical Aspects of Modernisation* (Cambridge and New York: Cambridge University Press, 1982).

²⁵ Smout did examine the Union in *Scottish Trade on the Eve of Union, 1660-1707* (Edinburgh: Oliver & Boyd, 1963), but this was more centered on economic and political history; Smout, *A History of the Scottish People, 1560-1830* (New York: Scribner, 1970); Smout, Alan R. MacDonald, and Fiona J. Watson, *A History of the Native Woodlands of Scotland, 1500-1920* (Edinburgh: Edinburgh University Press, 2007).

²⁶ Christopher Whatley and Derek J. Patrick, *The Scots and the Union* (Edinburgh: Edinburgh University Press, 2006).

climatic and environmental change caused the Union or that responses to those changes were similar everywhere.

The second key finding of this work is that Scotland's experience, circa 1660-1707, is an essential part of the General Crisis and Global Little Ice Age. This is especially true for understanding the resumption of political crisis and social conflict influenced by climatic inducements after the 1660s. Scotland was an exception to this Global Crisis. Scotland endured many periods of crisis, yet the social responses and decisions that those environmental and climatic changes influenced created a scenario not of rebellion, but of a union. Although Scotland and England's solution was a union rather than rebellion, that did not create a consensus for a yes or no vote on Union in 1707. In fact, much like more recent work on the role of climate and history, this work shows how adaptations to climatic changes were not universal.

This work occurs during the last third of the Global Little Ice Age circa 1570-1720, a period of climatic instability throughout the globe, which chapter two explores more deeply. This periodization emphasizes how global climatic instability influenced social, political, economic, and cultural changes. Works from Sam White and Geoffrey Parker have highlighted how climatic instability served as a background or motivating factor in political, economic, social, and cultural change. In their seminal studies of early modern rebellions and political upheaval that wracked the world during the so-called General Crisis of the seventeenth century, a period of instability and conflict across the globe, at the height of the Global Little Ice Age, White and Parker have forcefully argued that populations tended to rebel when facing combined climatic, economic, and social pressures. For instance, Sam White utilized cultural textual sources with natural proxy sources to argue that environmental and climatic changes during the late sixteenth and early seventeenth centuries, and social responses to those changes provide a far better

explanation for Ottoman rebellions than what previous Eurocentric historians had blamed on the inevitable “decline” of the Ottoman Empire in the face of the Rise of the West.²⁷ White saw climate as a central agent of change, but climate was one of several agents such as other aspects of the environment, economics, and politics.²⁸ Geoffrey Parker’s *Global Crisis* also stressed the importance of climate variability during the General Crisis by blending the emphasis of the work on climate, society, and warfare.²⁹ While attempting to explain why societies in the seventeenth century rebelled more frequently, Parker emphasized the importance of climatic change and variability in creating circumstance that inspired political conflict and social changes. Parker also made the case for these climatic and social changes occurring globally during the seventeenth century, making the General Crisis now a Global Crisis. For instance, cooler and wetter temperatures during the 1630s and 1640s brought scarcity, famine, and disease to parts of Scotland and England, which further enhanced ongoing social and political unrest. The same could be said of China and the several parts of the Americas in the 1640s.

Historians have also demonstrated that this period of climatic and societal crisis was hardly uniform. Georgina Enfield’s *Culture and Society in Colonial Mexico* (2008) utilized three regional cases studies within colonial Mexico (Chihuahua, Oaxaca, and Guanajuato) to show the

²⁷ Sam White, *The Climate of Rebellion in the Early Modern Ottoman Empire* (Cambridge and New York: Cambridge University Press, 2011). The Global Little Ice Age was central to White’s work, but so too were the environment, economics, and politics. White also demonstrated that the effects of the Global Little Ice Age were felt differently in specific regions in places of the vast Ottoman Empire like Egypt, Anatolia, or the Levant. During the Little Ice Age, areas could experience climatic extremes such as colder temperatures and excessive rains for prolonged periods (years). Other places dealt with drought or excessive heat.

²⁸ See White’s *The Climate of Rebellion*, 1-14.

²⁹ See Parker’s *Global Crisis*, 25-56; For more on the General Crisis see Hobsbawm, “The General Crisis of the European Economy in the 17th Century,” 33-53; Trevor-Roper, “The General Crisis of the 17th Century,”; Jack Goldstone, *Revolution and Rebellion in the Early Modern World* (Berkeley and Los Angeles: University of California Press, 1991), 1-15.

difficulties in trying to produce generalizations about a larger region's response to climatic changes since the response could vary greatly within each individual region.³⁰ For example, as in many places across the globe, the 1690s in colonial Mexico saw significant climatic fluctuations, weather extremes, and social disruption—including the largest urban uprising in the history of colonial Latin America. In the case of the regions surrounding the colonial capital Mexico City, periods of drought and severe frosts brought a broad-based subsistence crisis that caused riots, death, and contributed to epidemics.³¹ While the climatic changes were important, Enfield argued that it was the social responses to these changes that were equally, if not more important than the climatic changes themselves.³² Recently, Dagomar Degroot's *The Frigid Golden Age* (2018) examined the adaptability of European agrarian societies but emphasized the advantages this situation posed for a resilient Dutch Society—for example—at least until the 1670s when climate-induced 'disaster' began to strike the Netherlands with more regularity.³³

Scotland was an exception within this Global Crisis. While Scotland has endured many periods of crisis, the social responses and decisions on union that those environmental and climatic changes influenced created a scenario not of rebellion, but of a union. Similar to Enfield and Degroot, this work demonstrates that while climate-induced disaster was more prevalent during this period of Global Crisis, social responses often did not result in popular uprisings or

³⁰ Georgina Enfield, *Climate and Society in Colonial Mexico: A Study in Vulnerability* (Oxford: Blackwell Publishing, 2008), 182.

³¹ Enfield, *Climate and Society in Colonial Mexico*, 1, 126-28, 133-34, 143-46; on the Mexico City uprising of 1692, see R. Douglas Cope, *The Limits of Racial Domination: Plebian Society in Colonial Mexico City, 1660-1720* (Madison: University of Wisconsin Press, 1994).

³² Enfield, *Climate and Society in Colonial Mexico*, 181.

³³ Dagomar Degroot, *The Frigid Golden Age: Climate Change, the Little Ice Age, and the Dutch Republic, 1560-1720* (Cambridge: Cambridge University Press, 2018); for more on the 'disasters' at the end of the Golden Age see Adam Sundberg, "Flood, Worms, and Cattle Plague: Nature-Induced Disasters at the Closing of the Dutch Golden Age, 1672-1764," PhD. Diss., University of Kansas, 2015.

confrontational wars. The decisions by Scottish Parliamentary representatives to join a union were ultimately based upon both individual and collective interests, be they environmental, political, economic, or religious. Many of those interests were firmly rooted in the exploitation of Scotland's natural resources that were frequently harmed by Scotland's changing environment during the last third of the Global Little Ice Age. Some examples include those with interests in the Scottish coal and salt industries, which were closely interconnected during the seventeenth century (discussed in chapter four). Those with interests in the coal industry were more likely to support union, but those with interests in the salt trade were just as likely to vote against union as they were for it. Both industries suffered because of changing environmental, climatic, political, and social conditions, but responses to those changes were hardly uniform, even within the same industry. Even among groups that largely voted in favor of union, like in the herring and other fishing industries, certain fishing regions and social groups within those regions had distinct reasons for doing so.

The third essential finding of this work was that timing was an essential factor for the Union taking place in 1707, and it was the timing of the Great Storm in 1703—itsself an environmental extreme related to the Global Little Ice Age—which brought England to the negotiating table. Scotland faced several climatic, environmental, political, social, and economic challenges between the Union of Crowns in 1603 and the Acts of Union in 1707. There was intense religious conflict in the 1630s, not to mention regular shifts in the national religion as the country went back and forth between a Presbyterian and an Episcopal Church, there was civil war during the 1640s, a revolution in the 1680s, famine during the 1620s, economic decline during the 1640s, followed by recovery during the 1660s, and political change from a monarch to a protectorate and back to a monarch again—all punctuated by significant cold periods during

the 1600s, 1640s, 1670s, and 1690s. What was unique about events after the turn of the eighteenth century was the convergence of all of these factors. Economic decline became especially widespread in Scotland during the 1690s, helped in part by the extreme climatic conditions of that decade, geopolitics were heightened during a larger war, decreases in trade became more regular, and a failed colonization attempt at Darien damaged a fragile economy. Environmental change, religious dissent, and questions of monarchical succession were ongoing, and by 1702, the War of the Spanish Succession drew much of Europe into renewed conflict. There was a very real possibility during the early years of the war that it could have become the War of the British Succession, as well. With the death of the future Queen Anne's child in 1700, the English Parliament passed the 1701 Act of Succession, which gave the English crown after Anne to the Protestant heir, Sophia of Hanover. One major problem, however, was that the Scots were not consulted in this decision, even though the 1689 settlement between Scotland and England to crown the Dutch noble William of Orange and his wife Mary as dual monarchs, after they had defeated James II and his supporters in what is commonly known as the "Glorious Revolution," guaranteed Scotland's right to choose its next successor. This 1701 settlement created even more tension between the two sides, which led to heated Parliamentary debate and Parliamentary acts aimed at forcing the hand of the other. It also meant that the future monarch of Scotland remained unresolved when Anne took the throne after the deaths of Mary then William in 1702. The English fear, especially within the Royal Court, was that with the support of France, Scotland could easily seek their own choice for monarch that was separate from England and leave northern England open to invasion. This became a more pressing need for the Royal Court and especially so for the English Parliament after the Great Storm and Scots Plot of late 1703 and poor outcomes from the battlefield on the Continent, as detailed in chapter seven.

The aforementioned factors helped both sides find a benefit from union. As Alan I. Macinnes argued, it was as much England seriously coming to the negotiating table after 1703 that allowed union to be a real possibility.³⁴ There were some initial discussions towards a closer union during the seventeenth century, but real interest by both sides remained elusive. Scottish advisors, peers, and nobles had more seriously suggested the idea of union, after 1689 and new monarchs William and Mary. While this was not a universally held idea in Scotland, the Scottish union representatives in 1702-03 seriously discussed a union that English representatives seem disinterested towards. This changed the next time they met in 1705, as the English representatives vehemently pursued terms for a union, a momentous change in an exceedingly small window. The timing of the Great Storm of 1703 was a final tipping point that drew England to the negotiating table.

The last essential finding of this work is that the period witnessed the beginnings of a transition within Scotland's economy and society, away from a narrower Dutch-focused and regional North Seas World into what became a British-defined Atlantic World, and with it, a British-focused and colonial-focused economy. During the medieval period, the North Seas World which included the North Sea extending from the Baltic Sea to the shores of Iceland and the northeastern Atlantic developed a shared culture that has been more commonly referred to as a North Sea Culture or a North Seas World.³⁵ This world was linked by the sea and shared a

³⁴ Alan I. Macinnes, "The Treaty of Union: Made in England" in T.M. Devine, *Scotland and the Union* (Edinburgh: Edinburgh University Press, 2008), 54.

³⁵ Juliette Roding and Lex Heerma van Voss, *The North Sea and Culture (1550-1800): Proceedings of the International Conference Held at Leiden 21-22 April 1995* (Hilversum: Verloren, 1997), see specifically 496; Hanno Brand, *The Dynamics of Economic Culture in the North Sea- and Baltic Region: In the Late Middle Ages and Early Modern Period* (Hilversum: Verloren, 2007); Michael Pye most recently popularized this argument in *The Edge of the World: A Cultural History of the North Sea and the Transformation of Europe* (New York: Pegasus Books, 2016).

similar economic culture, much like Braudel's Mediterranean World, which included capital, labor, goods, commercial innovation, people, ideas, and knowledge.³⁶ Scotland too was interconnected within this world for the early modern period, but the North Seas World's economic power slowly began to fade by the end of the seventeenth century. While England was well underway with the transition to an Atlantic based economy by the end of the seventeenth century, Scotland had fallen behind while utilizing the North Seas markets. The failed colonization of Darien, an attempt to set up an overseas trading colony in present day Panama, was a way to expand Scottish trade into the North Atlantic, especially after the English Navigation Acts shut out much of the legal Scottish trade in the Atlantic.³⁷ With its failure, Darien ended up becoming the final major attempt to expand Scottish trade into the Atlantic without significant outside help.

While the eighteenth century saw Scots become a larger part of the British Empire, it would not be until well after the Union that Scotland turned its interest east and away from the Atlantic. Outside of the actions of Scottish merchants and trading companies like the Company of Scotland, few Scots ventured outside of the Atlantic World for trade by the early eighteenth century. The Union negotiations made this point clear. Scottish negotiators declared that Scottish trade interests only extended into the Atlantic, and English negotiators, with the help of the East India Company and London financial interests, made sure that Scots only entered into Atlantic trade.³⁸ It would not be until much later in the eighteenth century that Scots played a more active

³⁶ Brand, *The Dynamics of Economic Culture in the North Sea and Baltic Region*, 8.

³⁷ Alan I. Macinnes, *Union and Empire: The Making of the United Kingdom in 1707* (Cambridge and New York: Cambridge University Press, 2007), 173-200.

³⁸ Andrew Mackillop, "A Union for Empire? Scotland, the English East India Company, and the British Union," *Scottish Historical Review* 87 (2008): 116-34.

part in the larger British Empire, becoming governor-general of India or taking a more active role in the East India Company for example.³⁹

Nonetheless, the prospect of a union was perceived to benefit both sides that supported it. It provided Scots with trading opportunities within the English Atlantic colonies, which were already established, an important caveat after Scotland had previously failed to establish a colony in present day Panama. Union also provided the protection of the English Navy for Scottish shipping, which Scotland desperately lacked, having only three warships to protect its merchant fleet. In exchange, the Union offered England protection from invasion by land. With the northern border now more protected and secure, this allowed resources to go towards other essential military needs on the Continent during the War of the Spanish Succession. Union also provided England with more supplies for their burgeoning Atlantic empire as Scots provided some raw materials such as cattle and linen, but more importantly, they could provide bodies to help both in warfare and in settling Great Britain's Atlantic colonies.⁴⁰ While many of these benefits did not materialize for much of Scottish society until the second half of the eighteenth century, those who supported Union saw it as a way for Scotland to become part of a larger Atlantic World.

Chapter Overview

To accomplish these aims this work utilizes eight chapters and an epilogue. The first chapter provides an overview of life in seventeenth-century Scotland, with an additional emphasis on its relations with England and the North Seas World. It provides a brief overview of

³⁹ G.J Bryant, "Scots in India in the Eighteenth Century," *Scottish Historical Review* 64 (1985): 22-41; for more on Scots taking part in the larger British Empire see David Hancock, *Citizens of the World: London Merchants and the Integration of the British Atlantic Community, 1735-1785* (Cambridge and New York: Cambridge University Press, 1995).

⁴⁰ Macinnes, "The Treaty of Union," 61-3.

the important economic, religious, political, social, and cultural changes during the century that turned out to be highly influential during the Union debates. The second chapter provides an overview of the climate of the North Atlantic and Scotland during the Global Little Ice Age (circa 1570-1720) based especially on a reconstruction utilizing so-called proxy records for climatic variability and change, that is, non-documentary physical archives that can assist in reconstructing past environmental conditions, including volcanic ash records, ice cores, tree rings, speleothems, and pollen records. In addition, it explores the main drivers of climatic variability and change in Scotland during the Global Little Ice Age. To accomplish this, this chapter deploys an interdisciplinary and transregional approach relating paleoclimatological data to ongoing debates regarding the causes and patterns of the Global Little Ice Age, including the influence of volcanic eruptions, oceanic variability involving the North Atlantic Oscillation, and solar irradiance. These proxy records are ‘new archives’ for many historians and have been little utilized until recently, even though they provide valuable information into how climatic change affected many of Scotland’s economic activities, particularly those dependent upon a stable climate. This chapter provides a framework for the environmental arguments appearing in the rest of the work. In the process it explores what the Global Little Ice Age meant for Britain, Europe, and the rest of the world.

The next two chapters demonstrate the centrality of the sea, the maritime environment, and marine resources to the development of Union. The third chapter further develops the idea of a North Seas World and Scotland’s position within it. Specifically, it explores Scotland’s place in the North Sea herring industry, its boom and bust cycles, and their particular influence on two of Scotland’s more remote regions, Shetland and Orkney. It highlights the marine interconnections that constituted this North Seas World, and it explains how smaller, often marginal communities

in Scotland responded to climatic change, and lays the groundwork for understanding how the changing fortunes of the herring fishery eventually influenced the Union debates. Chapter four examines the material and ecological ties that linked the herring, salt, and coal industries within a larger North Seas World. It was difficult and not profitable to export herring without salt for preservation, for example. The chapter also lays the groundwork for understanding how those commodities placed merchants, landowners, and politicians on opposite sides of Union negotiations at the beginning of the eighteenth century. It further develops more interconnections between Scottish trade and the North Seas World and demonstrates how cracks within and competition from outside this trading network saw Scotland's economy struggle and the possible solutions a larger British Atlantic market could provide.

Chapter five studies the relationship between environmental change and agriculture and the slow development of Scotland's subsistence and market economies. More specifically, it examines the fundamental influence that climate-induced agricultural declines had on the broader Scottish economy. It details the effects of the Ill Years, a series of poor harvests leading to dearth, scarcity, and famine in Scotland during the 1690s, as a signature influence of the Global Little Ice Age at this regional scale. Major regions on both shores of the Atlantic, including Finland and Mexico, also endured extreme environmental conditions and poor harvests. This chapter encapsulates the difficulties Scotland had within the North Seas World, and it introduces how Scottish landowners and merchants began looking to the Atlantic and expanding a North Seas World market for economic growth. This chapter demonstrates how these environmental changes prior to Union negotiations helped set the tone for the debates as they related to international trade and the internal vibrance of the Scottish economy.

The last three chapters focus on the geopolitical climate influencing Union negotiations, as well as Scotland's rapidly changing position within the international mercantile economy of the late seventeenth and early eighteenth centuries. Chapter six explores Scotland's economic transition away from the North Seas World into a much larger, colonial-focused Atlantic World. It examines why the Scottish government, Scottish merchants, and other investors in the Company of Scotland formed an overseas trading company aimed at establishing a trade and settler colony in what is now southern Panama. It also explores how herring, yet again, played an unheralded, yet central role within the Company of Scotland and its vision of Scottish improvement. This chapter also offers a perspective regarding what the planners of Darien envisioned with this project, particularly the views of William Paterson. He was one of, if not *the*, most important developers of the Darien project and envisioned making Scotland's colony the center of trade linking the Atlantic and Pacific. The historical importance of the Darien colony's failure to the development of Union cannot be overstated here. Contemporaries saw this colonial endeavor as a vital opportunity for Scotland to improve its position within the European and world balance of power. It also represented a gigantic financial investment, involving between one third and one half of the country's specie. Yet environmental conditions and geopolitics hindered their plans, as did the English Parliament's intervention against the project at several important junctures. Subsequent debates on the Union routinely cited the Darien fiasco as an essential cause of the country's economic troubles, and therefore, understanding why contemporaries believed Darien failed is essential to explaining how the Union debates unfolded.

Chapter seven examines how the notorious 'Great Storm' of 1703, which caused considerable damage to England and the Royal Navy, abruptly changed the perceived balance of power between Scotland and England. Because this storm so tangibly weakened the Royal Navy

in the challenging geopolitical context of the War of the Spanish Succession, the Great Storm was decisive in bringing England back to the Union negotiating table in 1704. It helps explain some of the politics and power dynamics leading up to the crucial phase of Union negotiations in 1705-07. Additionally, it demonstrates the role of contingency in the development of the Anglo-Scottish Union as well as in environmental and political history.

Chapter eight synthesizes this study's overall findings through a reexamination of the Union debates themselves on the Scottish side, particularly as they related to trade, the Scottish economy and environment, and the material interests of contributors to the debates and Parliamentary voters. This overtly political part of the analysis demonstrates how environmental motivations and circumstances directly and indirectly influenced key positions within the Union debates, and it helps to explain why enough members of the Scottish Parliament came together to choose union with England. In its simplest form, this is the chapter that demonstrates how climatic and environmental factors tangibly influenced the Anglo-Scottish Union of 1707. That is not to say that they were the most important factors behind the Union of 1707, but that they were vitally important factors among many, and crucial to understanding this foundational event in British history.

In sum, this work posits that six decades of climatic instability and environmental change corresponding to the last third of the Global Little Ice Age fundamentally influenced material life, political thinking, and governmental decision-making during the negotiations resulting in the Anglo-Scottish Union of 1707. It reveals the contribution of environmental factors to the conjuncture of events at the turn of the eighteenth century that brought Scotland and England together at the negotiating table. Using new climatic reconstructions, an unprecedentedly close examination of Scotland's involvement in the North Sea fishing industry, and attention to other

changes in Scotland's relationship to the North Sea and an emerging British-dominated Atlantic World, this work highlights the ways in which disastrous conditions led elite participants to concentrate on building something new as a solution, and the benefits the Scottish Parliament perceived would come from being a part of a larger economic union.

CHAPTER 1

Scotland and the Seventeenth-Century North Seas World

This introductory chapter provides a brief overview of Scotland during the seventeenth century as part of the North Seas World, highlighting several factors that helped shape later union debates, including religion, politics, economics, and the environment. While the emphasis here will be on Scotland, seventeenth century Scotland fit into a larger North Seas World consisting of itself, its neighbor England, and other states on the shores of the North Sea and Baltic and far northern Atlantic at that time. The interconnections within this North Seas World played an important role in shaping the Scottish economy and in the Union debates. The decline of Dutch and Hanseatic economic power by the end of the century helps explain why Scotland moved away from this North Seas World towards a British dominated Atlantic one. This condensed overview of the political, economic, social, and cultural factors important to the Union debates sets up the rest of the work that emphasizes the environmental origins of the 1707 Anglo-Scottish Union.

Regal Union, Religion, and War

One crucial place to start an overview of seventeenth-century Scotland is in 1603 with the Union of Crowns, or Regal Union, between Scotland and England and its ties to the politics and religious debates spawned by the Protestant Reformation. At the start of the seventeenth century, Scotland and England both utilized a parliamentary political system headed by a monarch. The cousin and closest surviving relative of the Tudor Queen Elizabeth I, James VI of Scotland, became King James I of England after her death left the English crown without a direct heir. After becoming the English monarch, James moved his Royal Court to London and began to rule

Scotland from a distance through the Privy Council based in Edinburgh. This group of between 35-50 members ruled the country in the absence of the monarch and the irregular meetings of the Scottish Parliament. Its members typically consisted of Scottish nobles and church officials loyal to the monarch and they generally adopted strategies favorable to the monarch's desires.¹ While the Scottish monarch ruled from England, the Privy Council kept close watch over Scotland.

Outside of the monarch and the Privy Council, there was the Scottish Parliament, which had a marginal role in Scottish politics except during two periods of crisis. During the seventeenth century the Scottish Parliament went through several periods of virtual nonexistence. Outside of the period of extreme crisis between 1638-51, as well as from 1689 onwards leading up to the Union debates, the Scottish Parliament did not regularly meet. While it served a significant role in promulgating taxes, legislation, and settling disputes, the amount of time necessary or allotted to take care of these roles was not extensive, and was often concluded in a few weeks. Attendance at Parliament varied greatly as well, from 29 members in 1641 to over 200 active voting members in 1706, though in many years this poor attendance resulted from apathy towards Parliament.²

The Scottish Parliament was dominated by the aristocracy, particularly the landed nobility, and although the Parliament grew significantly during the seventeenth century, its internal power dynamics remained largely the same. It consisted of peers (the titled nobility), burgh representatives from the merchant community, and shire representatives (the lesser

¹ Keith M. Brown, *Kingdom or Province: Scotland and the Regal Union, 1603-1715* (Basingstoke: Macmillan, 1993), 23-6.

² Brown, *Kingdom or Province*, 14. For a list of voting members in 1706 Scottish Parliament see Records of the Parliaments of Scotland to 1707, <https://www.rps.ac.uk/browse.html>; Ian McLean and Alistair McMillan also took a closer look at the voting record in 1706, see "1707 and 1800: A Treaty (Mostly) Honoured and a Treaty Broken," in McLean's *What's Wrong with the British Constitution?* (Oxford: Oxford University Press, 2010).

nobility).³ During the seventeenth century, the Scottish landed elite, numbered only a few thousand families, and of this only about 100 were actively involved within the Scottish Parliament, mainly as titled nobility, or peers.⁴ This included prominent families such as the Hamiltons, Douglasses, Gordons, and Campbells. Much of their political and economic power rested on land holding. Although merchants, through burgh representation, began to become more prominent and powerful by the end of the seventeenth century, their parliamentary influence was still predominately founded on land and landed wealth. The landed class had an overwhelming majority of members, reaching as high as 70% of the membership within Parliament in 1706.⁵ After James's coronation in 1603, Scotland and England became united in a Union of Crowns under a single monarch. However, they remained very much separate in almost all other governmental aspects, including two separate parliaments, which caused enduring tension between the two.

Another issue of marked tension was tension was religion. For much of the sixteenth century, there had been a growing movement in Europe, as well as in Scotland, to reform the Church. This broad movement, now referred to as the Reformation, was in reality many different reformations, including a Catholic counter-Reformation and long series of religious wars, which caused extreme violence in both the sixteenth and seventeenth centuries.⁶ Much of Europe, especially that west of the Elbe and Danube rivers, saw conflict, new variants of Christian faiths, and religious groups attempting to move the Church towards a more "authentic" form of

³ Bishops were traditionally a part of Parliament, but had been removed by the end of the seventeenth century.

⁴ Brown, *Kingdom or Province*, 33; T. C. Smout, *A History of the Scottish People: 1560-1830* (London: Fontana Press, 1985 [1969]), 126-7.

⁵ Whatley, *Scots and the Union*, 104-5; Brown, *Kingdom or Province*, 44-5.

⁶ Diarmaid MacCulloch, *The Reformation: A History* (New York: Penguin, 2003), XIX, XXI.

Christianity. This included Martin Luther's challenges to the Church (1517) and the subsequent Peasants' War in present day Germany (1520s), France's Wars of Religion (1562-98), The Eighty Years' War in the Low Countries (1568-1648), and perhaps most notably the Thirty Years' War (1618-48).⁷ The Thirty Years' War initially saw Europe split largely along a Protestant and Catholic divide fighting for confessional and territorial control. The war brought death and destruction to millions and devastated entire regions in central Europe.⁸

As the Thirty Years' War helps demonstrate, much of Europe experienced nearly continuous conflict during the seventeenth century, with most conflicts inspired at least in part by religious tensions. These reformations could also exacerbate ongoing social, political, or economic tensions and were just one of many changes and causes of conflict in Europe, during this early modern period. By the seventeenth century, these reformations created strict divides between composite states, almost along a north-south divide between Protestant (Dutch, Swedish, English, and Scottish) and Catholic (Spain and France), though conflict was just as likely to be between different Protestant faiths as well, like Presbyterian and Episcopal in Scotland and England.

Historians can point to the moment in 1559 when John Knox spoke out against the Catholic Church in Perth as a starting point of the Reformation in Scotland, but it was also the actions of the Church in the preceding decades that had agitated many, fueling the popular fervor for which the Reformation is so well known. As on the Continent, broad sectors of Scottish society, except those who reaped the main benefits of the old system, grew tired of the mismanagement and what would be perceived by later Protestants as unholy acts within the

⁷ MacCulloch, *The Reformation*, XIX, 123-32, 270-76, 464-74.

⁸ Parker, *Global Crisis*, 247-53.

Catholic Church. While much of what is written about the problems within the Church in sixteenth century Scotland is as much the result of Protestant propaganda as it was reality, works from this time do refer to the breakdown of the Church both spiritually and because of corruption.

Some of the more prominent stories recount how the lavish lifestyles of some Church officials, far removed from the pious lives they were supposed to lead, fueled the ire of many. As the Church became caretakers of large tracts of land, its wealth grew, but its financial resources often went to support its administration, abbeys, or universities, and local vicars and priests were frequently left without financial support. As funding began to decline during the late Medieval period, along with the deaths of thousands during and after plagues, this led to a system that was stretched too thinly. In some cases priests refused to bury the deceased or perform sacraments until they received obligatory offerings, while others became merchants or took other “worldly” occupations.⁹ The result was a poorer quality of priest as fewer people worked for the Church and motivation to uphold their priestly duties diminished. There were frequent reports of drunken priests at the altar and priests unable to read either Latin or the vernacular of the region.¹⁰ Church administration suffered its own problems, as kings and nobility frequently placed their illegitimate children in charge of parishes, with James V being notorious for this.¹¹

While there is likely some truth to these stories, the reality is that the Scottish Reformation was the result of several factors including what the Catholic Church taught, rather

⁹ Smout, *History of the Scottish People*, 53; R. Scott Spurlock, “The Laity and Structure of the Catholic Church in Early Modern Scotland,” in ed., Robert Armstrong and Tadhg Ó Hannracháin *Insular Christianity: Alternative Models of the Church in Britain and Ireland, c. 1570-1700* (Manchester: Manchester University Press, 2012), 231-46; J. Wormald, *Court, Kirk, and Community: Scotland, 1470-1625* (Edinburgh: Edinburgh University Press, 1991).

¹⁰ Smout, *History of the Scottish People*, 53.

¹¹ Smout, *History of the Scottish People*, 50-2.

than what its leaders or priests had done.¹² This included Scottish writers critiquing the Church based upon the renewed importance of humanism, which stressed rationality, education, and deduction.¹³ Much of this criticism also came from the Continent as Scottish Scholars began studying on the Continent before returning and helping to establish Scottish universities.¹⁴ The works of Luther, Huldrych Zwingli, and John Calvin helped influence calls for change within the Scottish Church as well.¹⁵ Calvin's teaching would also be influential in the United Provinces, providing a link with Scotland. The Catholic Church also responded by creating several reforming councils in the 1550s to address some of those critiques.

Politics also played a role as England's invasion and occupation of southeastern Scotland at the end of the 1540s left much of the area under the religious guidance of Protestants. England and Wales went through a similar reforming process except their reformation was catalyzed from the top down in the 1530s with King Henry VIII breaking away from the Catholic Church. A series of articles were established to help define the national Church, which became Anglican, referred to as Episcopal outside of England because it was presided over by bishops. While several of the previous traditions and rituals remained, like the rights of passage and prayer books, the Reformation in England was "a violent disruption" of what had come before it.¹⁶

¹² Spurlock, "The Laity and Structure of the Catholic Church in Early Modern Scotland," 231-46; J. Wormald, *Court, Kirk, and Community*, 124-142.

¹³ John MacQueen, *Humanism in Renaissance Scotland* (Edinburgh: Edinburgh University Press, 1990), 10-15, 161-175; J. Wormald, *Scotland: A History* (Oxford: Oxford University Press, 2005), 187-88.

¹⁴ J. Wormald, *Court, Kirk, and Community: Scotland, 1470–1625* (Edinburgh: Edinburgh University Press, 1991), 68-72.

¹⁵ Thomas, "The Renaissance," 186-91.

¹⁶ Eamon Duffy, *The Stripping of the Alters: Traditional Religion in England 1400-1580* (New Haven: Yale University Press, 1992), 1-4, 377-385.

Although a counter-reformation and religious wars would follow, by the 1540s, England had established a church clearly separate from Rome.

While Scotland was dealing with religious dissension in the 1540s, it was still a Catholic country, which heightened the long-running animosity between Scotland and England. A failed marriage attempt between the English heir Edward, son of Henry VIII, and Scottish heir Mary, Queen of Scots, resulted in an English invasion of southern Scotland. The invasion of Scotland or “Rough Wooing” (1543-51), as it later came to be known was a brutal affair that gave way to a struggle for the Scottish throne after James V’s death.¹⁷ It was fueled by English political and religious tensions with Scotland and fears of a possible Franco-Scottish invasion in northern England.¹⁸ This geopolitical fear remained during much of the early modern period and would play a role in union negotiations.

Scotland became ruled by regents after James V’s death in 1542, while Mary, Queen of Scots, who was but days old when her father died, was raised in France. Her mother, Mary of Guise, Queen consort of Scotland, married her daughter, Mary of Scots, to the French Dauphin in 1558, which further strengthened a burgeoning Franco-Scottish political alliance that had helped push back English forces in Scotland during the “Rough Wooing.” However, this also meant closer ties to Catholicism, which drew the animosity of Protestant reformers. John Knox, who had been a prisoner during the “Rough Wooing” and later went to Geneva, where he served under the tutelage of John Calvin, twice returned to Scotland in the late 1550s.¹⁹ When Knox spoke out against the Catholic Church in 1559, many in Scotland listened, and the ensuing battle

¹⁷ William Ferguson, *Scotland's Relations with England, A Survey to 1707* (Edinburgh: John Donald, 1977), 61-63.

¹⁸ Ferguson, *Scotland's Relations with England*, 61-63.

¹⁹ MacCulloch, *The Reformation*, 291-95.

between Protestants—mainly following the ideas of Knox and Calvin—and Catholics within Scotland was wrapped in international geopolitics. What we would now call a popular slogan of the Protestant reformers was that “if you were a [Scottish] patriot you were anti-French and therefore pro-English and protestant; if you were a protestant and pro-English, you were therefore anti-French and a patriot.”²⁰ After Queen Elizabeth I’s fleet sailed into the Firth of Forth early in 1560, and the death of Mary of Guise, the Catholic alliance crumbled and the Protestants gradually defeated the Catholic armies and turned Scotland into a Protestant country, with closer ties to England.²¹

In 1560, the Scottish Parliament recognized the Presbyterian Church as the national church, or kirk, pushed forward by the efforts of John Knox and the Protestant-leaning Scottish nobility. The Scottish population, though, remained quite divided in their religious views, and the Protestant Scottish kirk worked to gain followers through the turn of the seventeenth century. This was where the religious situation stood when James came to the throne of England in 1603. Although James sought a closer connection between the two nations, he struggled mightily to obtain a parliamentary or political union through the English Parliament, and by 1607 it had become clear that an incorporating union had no chance of making it through the House of Commons.²² One important objection, which would raise its head again a century later, was that a closer union would enrich Scotland at the expense of England.²³

²⁰ Smout, *History of the Scottish People*, 56.

²¹ Smout, *History of the Scottish People*, 56-7.

²² Alexander Murdoch, “The Legacy of Unionism in Eighteenth Century Scotland,” in T. M. Devine ed., *Scotland and the Union: 1707-2007* (Edinburgh: Edinburgh University Press, 2010), 77.

²³ Bruce Galloway, *The Union of England and Scotland, 1603-1608* (Edinburgh: John Donald Publishers, 2003), 93-5.

King James had much the same luck with religion. Scotland, which had a Presbyterian form of church organization, chose or elected elders who represented the views of their congregation before the larger governing assembly of the established Church. England's Church, which was Episcopal in outlook, was run by bishops who held authority as "apostles" of the Church. Presbyterian liturgy emphasized sermons, prayer, and music, and had the distinctive theological belief coming from its Calvinist roots, that salvation was predestined and expressed through intense faith and this was demonstrated through the Gospels. In England, the liturgy was more ritualistic and became codified in the Book of Common Prayer. Salvation required earthly piety, expressed through good works. Another crucial difference was in the definition of sacraments. In Scotland's Presbyterian Church, they centered on two events: baptism and communion. In England's Episcopal Church, the sacrament was utilized in more events including marriage, confirmation, confession, unction, and when taking ordination. Perhaps one of the more challenging features of Presbyterianism, especially for the monarch, was that God was sovereign, not the king who was the head of the Church of England, which is perhaps why James still relied upon bishops residing over the Presbyterian Church in Scotland.

While James wanted to bring the two churches and countries closer together, initially, James refrained from any significant effort to change either faith or unite the two countries under one liturgy, although he personally adopted the English Book of Common Prayer and desired the Scottish kirk to do the same.²⁴ Scotland remained Presbyterian in outlook, but still had presiding bishops, who incorporated the doctrinal Calvinism that James favored with the episcopal governance by the bishops. James began rewarding the members of his court and those loyal to

²⁴ Rosalind Mitchison, *Lordship to Patronage: Scotland, 1603-1745* (Edinburgh: Edinburgh University Press, 2007), 18.

him with the confiscated monastery lands from the early part of the Reformation.²⁵ He also began to take more active control over the Scottish General Assembly, which governed the church, by placing bishops within it. The bishops oversaw the education and behavior of the Scottish ministry, governed matters within the Church and its organization, and helped settle disputes between lay people. Most important, at least from the Scottish kirk's perspective, which was still Presbyterian, was that these bishops were appointed by the Episcopacy in England.²⁶ This could have created problems with the kirk in Scotland, but as it stood through much of James VI's reign, the clergy in Scotland were still Presbyterian in manner, they were not appointed by the bishops, although the bishops presided over their ceremony, and they did not have to take the Episcopal ordination to become clergy and because of this, both sides remained content.²⁷

The situation changed in 1621, after James pushed through the *Five Articles* in Scotland, in an attempt to unite the two churches under the same liturgy and bring them closer together. James had attempted to further unite the two churches for the previous decade but met continued resistance from Parliament and the Scottish Church. The *Five Articles* only served to further divide the Scottish Church. These articles included several measures that were still practiced in England, but had been largely absent in Scotland, including kneeling for communion. The Scottish kirk was threatened by these articles as it took away from their congregational approach and tried to move them, in their view, closer towards Catholic practices. The result was that these reforms were often little enforced and some Presbyterian groups or "conventicles" began to hold

²⁵ Mitchison, *Lordship to Patronage*, 10.

²⁶ Parker, *Global Crisis*, 325; Mitchison, *Lordship to Patronage*, 17-18.

²⁷ Mitchison, *Lordship to Patronage*, 17.

their own meetings.²⁸ Scottish Presbyterianism also acknowledged little room for new interpretations of the Bible, so if a monarch attempted to change liturgy or interpretations of the Bible, there would be some resistance to these efforts, if not outright dissent at such attempts as was seen during the reign of Charles I who succeeded his father James in 1625.²⁹

Charles's political and religious actions united many of his enemies during his 24-year reign. Charles possessed a weak financial base, which frequently hampered his ability to conduct his desired political and religious restructuring in England and Scotland. Shortly after he was crowned, he needed money to continue a war with Spain, which placed him at the mercy of the English Parliament. He attempted to refinance his own treasury through several actions, including a program to reconstruct Scottish landed society, in which he attempted to take back for the Crown the lands that had been taken away from the Church during the Reformation and given by his father to his supporters, which angered the landed nobility in both countries.³⁰ Meanwhile, cool and wet weather brought harvest failure and later plague, which saw increased death rates and higher grain prices lasting through the 1630s, on top of a war that did little to endear Charles to the English and Scottish people.³¹

In 1636, Charles detailed his ideas for religion in the two kingdoms, but he failed to mention Scottish Presbyteries, arguing that the authority of the Church resided with the bishops in the Episcopal manner, which the Presbyterian Scottish kirk saw as a direct threat to their organizational authority.³² The next year he enforced a new English-style liturgy, which caused riots throughout Scotland. Charles had removed or angered supportive members of the Privy

²⁸ Mitchison, *Lordship to Patronage*, 19.

²⁹ Mitchison, *Lordship to Patronage*, 28-9.

³⁰ Goldstone, *Revolution and Rebellion*, 104-09; Mitchison, *Lordship to Patronage*, 29.

³¹ Parker, *Global Crisis*, 327-8.

³² Smout, *History of the Scottish People*, 106-7; Mitchison, *Lordship to Patronage*, 38.

Council and clergy that might have helped diffuse the riots and outcries against his religious measurers. This also included members of the nobility and landed classes that Charles had alienated by increasing their taxes. Those who still supported Charles, were often ineffective appointments as councilors or sheriffs, for example.³³ This resulted in the Protestant nobility of Scotland heading up an opposition to monarchically mandated religious change that was supported through all levels of Scottish society and that culminated in the National Covenant of 1638 which wanted to maintain the kirk and return to the laws that had existed under James VI.³⁴

With Charles refusing to budge from his stances, the king's supporters, in turn, created an army and the two sides clashed in 1639-40 during the so-called Bishops' Wars. The Scottish side, headed by those that formed the National Covenant, known as Covenanters, and who attacked the king's liturgy and the bishops, won the conflict.³⁵ In a sense, the Union of Crowns had ended, and Scotland was independent for these few years. With the Covenanters in control of the country, they had the bishops expelled and a Presbyterian Church firmly established. In 1641, Charles attempted to offer concessions to the Covenanters in Scotland to reverse this separatist trend, which further destabilized his position in both Scotland and England.³⁶ During this period, Charles also recalled the English Parliament, in part because he possessed a weak financial base to combat the conflicts arising in Ireland. Ireland, which remained predominantly Catholic and was an English colony, had undergone severe climatic-induced dearth and famine between 1639-41, which cause social unrest to grow mightily.³⁷ The foremost problem for Charles, however, was that he had lost the support of the English Parliament and once it was called, it created an

³³ Parker, *Global Crisis*, 332-36; Mitchison, *Lordship to Patronage*, 36-9.

³⁴ Parker, *Global Crisis*, 334.

³⁵ Smout, *History of the Scottish People*, 107.

³⁶ Mitchison, *Lordship to Patronage*, 47.

³⁷ Parker, *Global Crisis*, 349.

opportunity for parliamentarians to express their many grievances towards the king. The ensuing debates and subsequent attempts by Charles to regain control of Parliament resulted in the outbreak of the English Civil War, also known as the War of the Three Kingdoms in 1642.³⁸

In England, the Royalist supporters of Charles I squared off against the supporters of Parliament. In Scotland, the Covenanters joined the English Parliamentarians who guaranteed the preservation of the Presbyterian Scottish Church and promised religious and political reform in England, presumably more towards a Presbyterian style government and Church.³⁹ The Scottish army became increasingly ineffective during this campaign, but together with the emergence of the English New Model Army they outnumbered and defeated the Royalist army forcing the surrender of Charles I in 1646. Over the next few years, the powers in charge of the two countries grew even further apart, with the Covenanters wanting the Scottish Church placed in charge of the country and the Parliamentarians wanting the English Parliament in control.⁴⁰ During this period of stand-off and negotiation, smaller rebellions in western Scotland demonstrated a weakening of the Covenanter unified front, which created a rift within the kirk.⁴¹

After his capture, Charles regained supporters in Scotland by guaranteeing a religious settlement where England would try Presbyterianism for three years if he regained control. He argued that a similar settlement was unlikely with to occur while the Covenanters aligned with

³⁸ Parker, *Global Crisis*, 352-54, 360; Goldstone, *Revolution and Rebellion*, 99, 104-09; Mitchison, *Lordship to Patronage*, 51; for a more detailed overview of the origins and events of the civil wars see J. S. Morrill *Revolt in the Provinces: The People of England and the Tragedies of War, 1630-1648* (London: Longman, 1999); Morrill, "The Religious Context of the English Civil War," *English Civil War* (1984): 159-181; Morrill, *Oliver Cromwell and the English Revolution* (London: Longman, 1999).

³⁹ Parker, *Global Crisis*, 364.

⁴⁰ Allan I. Macinnes, *Union and Empire: The Making of the United Kingdom in 1707* (Cambridge and New York: Cambridge University Press, 2007), 73-5; Mitchison, *Lordship to Patronage*, 52-5.

⁴¹ Mitchison, *Lordship to Patronage*, 56.

the Parliamentarians. This quickly gained support and the Covenanter army agreed to support Charles.⁴² This next series of battles was short lived, as the English New Model Army under the command of Oliver Cromwell quickly defeated the Royalist forces, with even more ruthless vigor than in the first war. Prisoners from these engagements ended up being sold in the Caribbean.⁴³ In the following year, Charles's relationship with the English Parliament soured even further and resulted in his execution in 1649.

Charles's execution meant that Cromwell became the effective leader of the English Commonwealth, while the Covenanter government in Scotland declared Charles II, Charles I's son, king of Scotland and Great Britain. Cromwell responded by invading Scotland and defeating the Covenanter forces in 1650 and 1651. Cromwell's subsequent occupation of Scotland during the 1650s and incorporation of Scotland into the Commonwealth, a period now known as the Interregnum (1649-1660), split the Scottish Kirk, as some sides wanted to find a resolution with the Church of England, while others wanted no resolution and wished to remove those who held friendly feelings towards the Church of England.⁴⁴ The Interregnum saw Scotland and England united in a single parliament, but this situation ended two years after the death of Cromwell in 1658.

King Charles II's "Declaration of Breda" of 1660 granted the English Parliament the right to decide titles and property and implemented religious toleration in England and Scotland, which resulted in Charles II receiving an invitation from the English Parliament in 1660 declaring him monarch of England, Scotland, and Ireland.⁴⁵ Charles II's declaration of religious

⁴² Parker, *Global Crisis*, 373-75.

⁴³ Macinnes, *Union and Empire*, 74-5; Parker, *Global Crisis*, 375.

⁴⁴ Macinnes, *Union and Empire*, 5, 74-5; Mitchison, *Lordship to Patronage*, 58, 63.

⁴⁵ Parker, *Global Crisis*, 386.

toleration in Scotland had lukewarm support from the Scottish people that were looking to avoid another war. The execution of several Covenanter opponents and a standing army to put down resistance helped preserve the ‘peaceful’ transition.⁴⁶ Despite only one-third to one-half of the Scottish population being Episcopal between 1660-1689, Scotland’s church became Episcopal in outlook with bishops and Episcopal structures, however, Presbyterianism did not disappear.⁴⁷ Charles did not favor Presbyterianism but the decision to make the Scottish Church Episcopal was decided, or rather guided through, by the Royal Court with the support of the nobility.⁴⁸ The reintroduction of Episcopality into Scotland became particularly problematic in the southwest, which had strong Presbyterian Covenanter leanings. The Restorationist Scottish government, through the Privy Council and later militia, expelled many of the clergy in those areas, but many of their local followers left with them. The expelled clergy, with their followers, began to conduct illegal services and became known as Conventicles.⁴⁹ An increased effort by the Scottish government to remove these groups resulted in several uprisings and years of conflict in western Scotland during the 1670s and 1680s, in what is more commonly been referred to as the “killing times.”

Like his predecessors, Charles II also sought to unite Scotland and England during his rule and organized union negotiations at the beginning of the 1670s. While the two sides did meet to negotiate, it was clear that each side was far from acquiescing to the other, and this attempt did not amount to much.⁵⁰ When Charles II died in 1685, his brother James succeeded him. James was far more permitting regarding toleration of religion, in part because of his own

⁴⁶ Parker, *Global Crisis*, 388-9.

⁴⁷ Whatley, *Scots and the Union*, 40.

⁴⁸ Ferguson, *Scotland’s Relations With England*, 142, 147-49.

⁴⁹ Smout, *History of the Scottish People*, 70-1; Mitchison, *Lordship to Patronage*, 73.

⁵⁰ Ferguson, *Scotland’s Relations With England*, 152-56.

leanings towards Catholicism, and placed Catholics in key positions within his government. This, in turn, weakened the power of the Episcopacy in Scotland.⁵¹ James II's economic policies put more power in the hands of the state and increased taxes to pay for a larger peacetime standing army. These poorly received actions moved several prominent Englishmen to invite Dutch Stadtholder William of Orange and his wife Mary, James II's daughter, to the throne in 1688.⁵² Although James fled London less than two months after William and Mary's invasion of England, he returned with French support along with his supporters in Scotland and Ireland. Over the next few years, William III defeated James II for control of the throne in what is better known as the "Glorious Revolution." William III offered concessions to Scotland in 1689 which guaranteed that Scotland would keep its national Kirk Presbyterian, and at least on par with the Episcopal Church within Scotland. In addition, the bishops were removed from the Kirk, in part because of their allegiance to James II.⁵³ By the 1690s, Presbyterianism had been restored in Scotland, and William and Mary controlled the throne of both countries without significant rivals.

The North Seas World as an Oceanic World

As this brief overview of Scotland in the seventeenth century suggests, events in Scotland were also shaped by Scotland's relation to a larger North Seas World. During the medieval and early modern periods, the North Seas World, stretching from the Icelandic shores into the Baltic Sea, developed a shared culture in what has become commonly referred to as a North Sea

⁵¹ Smout, *History of the Scottish People*, 116.

⁵² For more on James's religious and economic policies see Scott Sowerby, *Making Toleration: The Repealers and the Glorious Revolution* (Cambridge: Harvard University Press, 2013); Steven Pincus, *1688 The First Modern Revolution* (New Haven: Yale University Press, 2009).

⁵³ Whatley, *Scots and the Union*, 36; Mitchison, *Lordship to Patronage*, 117.

Culture or World.⁵⁴ Hanno Brand and Leos Müller argued that this region shared a similar economic culture, which included goods, capital, labor, social network expansion, and commercial innovation, but also diplomacy, ideas, knowledge, and values for creating commercial and social contacts and building economic ventures.⁵⁵ While each state within this larger North Sea and Baltic economic culture, or North Seas World, had its own trade(s) and specializations, like Scottish coal or cattle, or English red herring for example, it also participated in interconnected trade within this larger region as well, or at least when circumstances allowed.

Many ideas, commodities, and peoples helped create a shared linkage between these coastal communities within the North Sea, but the most vital connection throughout this region was the sea itself. Fernand Braudel's *The Mediterranean and the Mediterranean World* (1972) is perhaps best known within this literature for arguing that the Mediterranean Sea united its coastal communities within a shared culture developing out of similar geographical conditions, common trade linkages, and intercultural exchange.⁵⁶ Since Braudel, scholars like James Coull, Poul Holm, Bo Poulsen, Kathleen Schwerdtner Mániz, David Starkey, Jeffrey Bolster, and Gregory Cushman have all built upon Braudel's argument and further explored the interconnections

⁵⁴ Juliette Roding and Lex Heerma van Voss, *The North Sea and Culture (1550-1800): Proceedings of the International Conference Held at Leiden 21-22 April 1995* (Hilversum: Verloren, 1997). See specifically 496; Hanno Brand, *The Dynamics of Economic Culture in the North Sea- and Baltic Region: In the Late Middle Ages and Early Modern Period* (Hilversum: Verloren, 2007); Michael Pye, *The Edge of the World: A Cultural History of the North Sea and the Transformation of Europe* (New York: Pegasus Books, 2016).

⁵⁵ Brand, *The Dynamics of Economic Culture in the North Sea- and Baltic Region*, 8.

⁵⁶ Fernand Braudel, *The Mediterranean and the Mediterranean World in the Age of Philip II* (London: Collins, 1972), 276-77; W. Blockmans and L. Heerma van Voss applied this model to the North Sea in "Urban Networks and Emerging States in the North Sea and Baltic Areas: a Maritime Culture?" in Roding and Van Voss, *The North Sea and Culture (1550-1800)*, 11.

between coastal communities and the seas they border.⁵⁷ Based upon those parameters, a similar situation existed within the North Sea by the end of the medieval period. Geographically, water unified the North Seas World. Trade also connected most major cities along the coast and hinterland regions. Commodities also link many of these areas as fish and grains flow from the Baltic west to Scotland and back, for example, but not without salt from the Dutch that was exchanged for Scottish coal. Additionally, an intercultural exchange existed as similar architecture can be found in London and Riga or Bremen and Bergen. The same is true with joint stock trading companies, Protestant religion, and art, for instance. That is not to say that there were not outside influences into this North Sea World, clearly, there were many. For instance, Dutch and Low Country art, which became highly esteemed and imitated during the seventeenth century, had many influences from Italian Renaissance painters. Nonetheless, there were several geographic, economic, and cultural links unifying coastal regions along this North Seas World and the North Sea's connections and interdependency are vital when studying any country in this region.

One of the most important of those connections and interdependencies within this North Seas World was trade, especially seafaring trade. The flow of goods between the North Sea, Baltic, and even more so, the Atlantic by the end of the seventeenth century, created a network of

⁵⁷ James Coull, "Will a Blue Revolution follow the Green Revolution?: The Modern Upsurge of Aquaculture," *Area* 25 (1993): 350-57; Poul Holm, Tim D. Smith, and David J. Starkey, eds. *The Exploited Seas: New Directions in Marine Environmental History* (Liverpool: Liverpool University Press, 2001); W. Jeffrey Bolster, "Opportunities in Marine Environmental History," *Environmental History* 11 (2006): 567-97; Gregory T. Cushman, *Guano and the Opening of the Pacific World: A Global Ecological History* (Cambridge and New York: Cambridge University Press, 2013); Kathleen Schwerdtner Máñez and Bo Poulsen eds., *Perspectives on Oceans Past: A Handbook of Marine Environmental History* (Dordrecht: Springer Science+Business Media, 2016). See also David Armitage, Alison Bashford, and Sujit Sivasundaram, *Oceanic Histories* (Cambridge and New York: Cambridge University Press, 2018).

communities based upon trade and goods, interlinking communities in coastal and more interior locations and more and less developed areas.⁵⁸ As in the case of Shetland and Orkney, it was quite common for coastal communities to have more of a connection with other areas on the North Sea or Baltic than it was for them to interact with inland regions of what was ostensibly the same country. The sea itself was a crucial part of this interconnectivity because shipping was usually much cheaper, quicker, and more reliable than long-distance transportation over land, providing a conduit for the exchange of goods, people, and ideas. For instance, it was commonplace and much easier for those in Bergen, Norway, to take a ship and go shopping in Newcastle, England, than it was to make a trek to Oslo.⁵⁹ Water also unified ways of seeing the land as similar methods for draining and later utilizing fenland took place in eastern England, the United Provinces, and Baltic states—and even the Valley of Mexico, with Low Country engineers unifying them all.⁶⁰

As the following chapters demonstrate, English influence in Scotland grew more evident by the end of the seventeenth century, but most North Seas countries left some mark on Scotland, especially through the flow of commodities, ideas, and peoples. Outside of England, the United Provinces (Dutch) was the most influential to Scotland. Scottish merchants frequently traded at Veere or Campveere and Rotterdam and during parts of the seventeenth century Scottish ships left from Leith to the United Provinces, almost daily.⁶¹ In fact, Veere was the staple port of Scotland from 1541-1799, which gave them great control over Scottish goods entering into the

⁵⁸ Brand, *The Dynamics of Economic Culture in the North Sea and Baltic Region*, 7.

⁵⁹ Roding and Van Voss, *The North Sea and Culture (1550-1800)*, 496.

⁶⁰ Eric Ash, *The Draining of the Fens: Projectors, Popular Politics, and State Building in Early Modern England* (Baltimore: Johns Hopkins University Press, 2017). Vera S. Candiani, *Dreaming of Dry Land: Environmental Transformation in Colonial Mexico City* (Stanford: Stanford University Press, 2014), 72-78.

⁶¹ Whatley, *Scots and the Union*, 73.

United Provinces, like wool, grains, fish, and coal.⁶² Dutch traders also frequented Scotland, especially in Shetland and Orkney where Dutch and Hanseatic traders supplied these locations with many essentials and often luxury items. This Dutch influence and success in trade was not lost on Scottish contemporaries and was a frequent topic of discussion, especially in the second part of the century. Scottish pamphleteers frequently commented on the success of Dutch trade in general and specifically their fishing industry, often lamenting and trying to discover how a country so small could have so much success, with the goal of emulating them.

Trade was a definitive feature of the North Seas World. Although their influence was dwindling by the end of the seventeenth century, Hanseatic merchants and port cities played another important role in Scottish trade and helped further develop the North Seas World's interconnections. The Hanseatic League was an alliance of port city-states united through commerce and military power when necessary. What began as a few German cities in the eleventh century grew to cover much of the North Seas World until its disbanding in the seventeenth century. At the height of its power in the fourteenth and fifteenth centuries, it stretched across the Baltic and North Sea, helping shape trade in the North Seas World. It provided opportunities for raw materials like timber, hemp, fish, and flax to travel from the eastern Baltic into western markets like Bristol, London, and Aberdeen in exchange for manufactured products. Figure 1.1 displays several prominent trading cities utilized by Hanseatic merchants in addition to several trading routes. While competition from outside markets, like

⁶² For more on Scottish trade at Veere see John Davidson, and Alexander Gray, *The Scottish Staple at Veere: A Study in the Economic History of Scotland* (London: Longmans, 1909); Victor Enthoven "Thomas Cunningham (1604-1669): Conservator of the Scottish Court at Veere" in David Dickson, Jan Parmentier, and Jane H. Ohlmeyer ed., *Irish and Scottish Mercantile Networks in Europe and Overseas in the Seventeenth and Eighteenth Century* (Gent: Academia, 2007), 39-66.

England, Sweden, and the Dutch, eventually overtook the power the Hanseatic League wielded over the North Seas World, Hanseatic merchants were still prevalent in most major trading cities during the seventeenth century.⁶³ In Shetland and Orkney for example, Hanseatic merchants would set up trading booths during the summers. Here wool and fish from the islanders were exchanged for specie, and more frequently, foodstuffs and manufactured goods. Though this trade too would suffer with the decline of the Hanseatic League.⁶⁴

Scottish merchants, especially those on Scotland's eastern coasts, travelled regularly to every part of the North Sea and Baltic and even to Mediterranean markets in Spain. During the seventeenth century, Scottish ships often exchanged herring for Swedish iron, Norwegian timber, salt and wine from France, and grain from the Baltic states. There were even thousands of emigrant Scots within the North Seas World as many Scottish merchants ventured throughout the North Sea and into the Baltic. Some became naturalized in their new trading countries, others became soldiers, many others suffered misfortune and remained as beggars, and some took up positions at important ports as a go between for fellow Scottish merchants in places like Rotterdam, Veere (Camp Veere), Danzig, London, Bordeaux, and Elsinore.⁶⁵ While the importance of each place waxed and waned, the places Scots would regularly trade with and were most familiar with were largely the same in 1690 as they had been in 1290, which helps

⁶³ For more on these linkages see Bart Holterman, *The Fish Lands: German Trade with Iceland, Shetland and the Faroes in the Late 15th and 16th Century* (Berlin: De Gruyter Oldenbourg, 2020). A fascinating study of Hanseatic graves in Shetland can be found here:

<https://fishandships.dsm.museum/>

⁶⁴ Coull, *Sea Fisheries of Scotland*, 80, 87.

⁶⁵ Fernand Braudel, *Civilization and Capitalism Volume III: The Perspective of the World* (Berkeley and Los Angeles, University of California Press, 1992), 370; Smout, *History of the Scottish People*, 155

show the significance of a North Seas trading culture to Scotland.⁶⁶ There was though one major caveat to this, while western Scotland merchants travelled many of the same North Seas routes, they also had significant trading connections in the West Indies and Americas and by the end of the century were developing Scotland's economic ties into a larger Atlantic world.

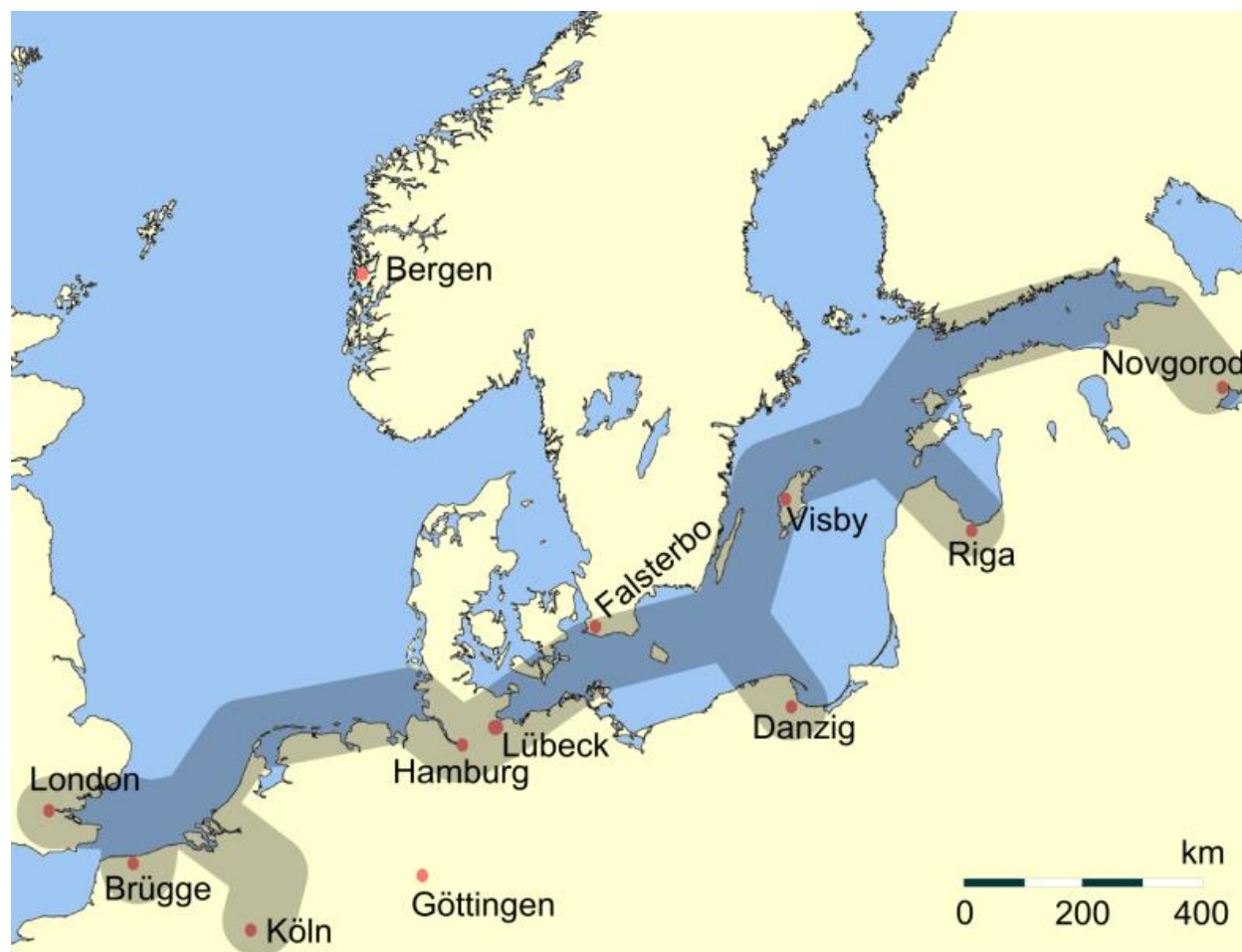


Figure 1.1. Map displaying several of the prominent trading routes and cities of Hanseatic Merchants. *Map by Flo Beck.*

⁶⁶ They were unlikely to venture outside of those areas. It was rare to see Scots travel to Russia or Italy for example. Smout, *History of the Scottish People*, 156.

The Scottish economy and Scottish trade saw two general trends during the seventeenth century. The first was that it was a period of change. Much like the rest of Europe, success and failure were both common during the seventeenth century and Scotland saw decades of each.⁶⁹ Scotland also began a shift away from a North Seas-centered world towards a British- and Atlantic-centered world by the century's end. It was the failure of Scottish trade and fishing within the North Seas World that began to shift it more and more towards England and even the American Colonies. The second trend, while closely related to the first, was that Scottish material life became more influenced by the changes going on within the North Seas World including war and mercantilistic reforms.

While Scotland saw some economic success during the seventeenth century, that success was relative. Glasgow for instance saw significant growth throughout the century, but other burghs like Aberdeen, St. Andrews, and Crail saw declines in trade by the end of the century. Scottish society still relied upon a steady supply of grains, especially oats, which were well adapted to the Scottish climate, and a grain shortage or period of warfare could make grains become non-existent. Bullion and specie were regularly in short supply and crippling debts became more common on estates and within lower levels of society that could find the support to accumulate them.⁷⁰ Conflict, particularly during the 1640s, brought destruction to Scotland and economic decline. The wars themselves made it difficult for many economic activities to take place, especially the export of grains and raw materials. The destruction from the wars of the

⁶⁹ For more on the economic trends of Europe see Fernand Braudel, *Civilization and Capitalism 15th-18th Century Volume II: The Wheels of Commerce* (Berkeley and Los Angeles, University of California Press, 1992), 138-223; Braudel, *The Perspective of the World*, 92-264, 280-370; Jan De Vries, *Economy of Europe in an Age of Crisis, 1600-750* (Cambridge and New York: Cambridge University Press, 1976).

⁷⁰ Whatley, *Scots and the Union*, 120.

1640s increased Scotland's financial burdens as taxes became higher to pay for the occupation of English troops in the 1650s and to pay the costs of frequent wars. Because of this, many Scottish industries suffered during the period before the Restoration, and of the larger industries, only the salt and linen industries prospered until the 1660s because of the temporary access to the English market under Cromwell's rule.⁷¹ Dundee, Aberdeen, and Perth, for example, saw their towns, trade, and populations decimated. For instance, by 1651 Dundee only had 12 ships pass through the Danish Sound to trade in the Baltic, where before there were at least a hundred ships traveling through annually on their way to Baltic markets.⁷²

Warfare also hurt large parts of the merchant class. During the 1640s Scottish merchant guilds in Glasgow joined with the Covenanters and provided significant financial assistance. The defeat of the Covenanters saw severe repercussions handed out to those who supported the losing side, which served as a deterrent against overt political or religious involvement for many Scottish merchants during the pre-union period. Despite this, Scottish merchants were not altogether removed from politics or religious movements, but they intentionally took a subservient role becoming more involved after the landed nobility had voiced their opinion and Scottish merchants would largely follow their decisions.⁷³

Times were not always so bleak, however, as the period after the 1660 Restoration of Charles II brought renewed economic growth. There was a marked increase in the Scottish market economy as the number of merchants and the merchant class grew. The economic and political power of towns or burghs was concentrated in the hands of a small group of elite merchants known as burgesses, and while the number of merchants increased during the

⁷¹ Smout, *History of the Scottish People*, 108.

⁷² Smout, *History of the Scottish People*, 107.

⁷³ Brown, *Kingdom or Province*, 51-3.

seventeenth century, the political power of merchants remained within this smaller group of people. Royal burghs, of which there numbered 60-70 during the seventeenth century, had representation in the Scottish Parliament, and therefore, represented the interests of traders and merchants.⁷⁴ Most of the wealthiest merchants in the country came from the larger towns or royal burghs of Edinburgh, Glasgow, Aberdeen, Perth, and Dundee and represented merchant interests in the Scottish Parliament.

Prosperity in the grain trade fueled part of this expansion. Except for 1674-6, food prices remained relatively stable until the disastrous last decade of the century. Cereal planting expanded and when grain surpluses were available, they went to Norway, the Baltic, or the United Provinces and provided additional income. Trade in general began to resume after 1660, though higher overseas tariffs cut into pre-war profits as states began to implement mercantile protectionist taxes. With the encouragement of the Privy Council and the Scottish Parliament, several new industries and burgh businesses began to sprout up like the weaving of woolen cloth and a new Atlantic-oriented industry, sugar refining.⁷⁵ Older trades like salt and coal also began to prosper again, and the general trend of the post-Restoration period, until the 1680s, was one of growing trade and industry. In this period, international warfare brought opportunities for Scottish merchants to trade and carry goods. For instance, during the Franco-Dutch conflict when the English and Scottish were not involved, Scottish merchants often replaced Dutch traders and transporters by shipping grain or fish to Baltic markets, for example.⁷⁶ The Restoration period was one of relative stability and prosperity through much of the Scottish

⁷⁴ Smout, *History of the Scottish People*, 146-50. There were also several hundred burghs of barony, though these had much smaller populations, normally around 100 people.

⁷⁵ Smout, *History of the Scottish People*, 109.

⁷⁶ Smout, *Scottish Trade*, 240-41.

mainland, and by 1680, it was clear that Scotland was in a better economic situation than it had been at any point during the previous century and a half.⁷⁷ Part of this was the result of a better agricultural climate, which provided more surplus for trade that, in turn, returned specie that could be used for further investment.

Not only were more essential items like foodstuffs traded from Scotland to the Baltic, for example, but manufactured goods and luxury items like Dutch art were also highly sought after. For example, the Dutch artist Jacob de Wet was employed all over Scotland and furnished Holyroodhouse with portraits of all the Scottish monarchs prior to Charles II. De Wet also worked at several Scottish estates during the second part of the century.⁷⁸ Large manor homes increasingly dominated the country landscape built in a style shifting from castles to estate homes. Estate furnishing was also a lucrative market that drew on Scottish finances. Inspiration often had Dutch or Flemish origins. By 1704 elite Scots were spending over £30,000 sterling per year on these luxuries, much to the chagrin of some contemporaries during Union discussions.⁷⁹ Scots were not alone, however, as a quick glance into many of the private collections of any estate in England would also contain large numbers of Dutch and Flemish artists.

Much of this expenditure and extra income was based upon the most important industry in Scotland during the seventeenth century: agriculture. Agriculture financed estates and land holders, provided over 80% of the caloric intake for Scottish society, and for the most well off in society, it fueled conspicuous consumption. Edinburgh, for instance, emptied during the harvest period as people flocked to the countryside to tend their crops or seek work, as nearly eight in ten

⁷⁷ Smout, *Scottish Trade*, 244.

⁷⁸ Whatley, *Scots and the Union*, 107.

⁷⁹ Whatley, *Scots and the Union*, 107.

Scots worked in the countryside by the end of the century.⁸⁰ Land ownership and the income from rents helped fuel much of the conspicuous consumption of the nobility, and patronage from the monarch often helped many land owners support their growing expenditures, which increased personal debts as their landed interests were regularly outstripped by their spending, though this did not become a significant problem until after the 1680s.

While the connectivity provided by the sea was important in forming political, social, and economic bonds it could also help drive competition, conflict, and war. For instance, the United Provinces of the Netherlands, or the Dutch Republic, itself was born out of such transregional conflicts in the second part of the sixteenth century and continued to fight against Spain, France, and England for much of the seventeenth century as well. As Jonathan Israel, Jan de Vries, and Ad van der Woude have pointed out, the case of the Dutch Republic demonstrated that a growing economy was not always under the direction of a central government or an area that had comprised clear national boundaries, a result in part because of the continual warfare during the early years of the Dutch Republic.⁸¹ Warfare was also common in part because of the value of the trade within this North Seas World. Hano Brand and Leos Müller labeled the North Sea World “the northern, colder, and poorer reflection of Braudel’s Mediterranean,” and while it was more northern and colder than the Mediterranean, by the seventeenth century, it was not necessarily poorer, as Dutch and later English trade were key to financing and transporting commodities to the rest of Europe and in many cases throughout the world.⁸²

⁸⁰ Whatley, *Scots and the Union*, 108.

⁸¹ Jonathan Israel, *Dutch Primacy in World Trade, 1585-1740* (Oxford: Clarendon Press, 2002), 2-37; Jan de Vries and Ad van der Woude, *The First Modern Economy: Success, Failure, and Perseverance of the Dutch Economy, 1500-1815* (Cambridge and New York: Cambridge University Press, 2010), 10.

⁸² Brand, *The Dynamics of Economic Culture in the North Sea- and Baltic Region*, 7; Fernand Braudel, *Civilization and Capitalism 15th-18th Century Volume II: The Wheels of Commerce*

Beginning in the mid sixteenth century and for much of the next century, the Dutch economy led Europe in trade during what is now referred to as the Dutch Golden Age.⁸³ This period saw the emergence of the Dutch state and the subsequent role of Dutch traders as one of the primary drivers of trade in the North Sea and the world. During this period Dutch traders controlled large volumes of trade going from east to west (Baltic to North Sea and beyond) and from north to south (North Sea to Mediterranean and beyond). In addition, this was during the same period when international trading companies such as the Dutch East India Company, or the VOC, began trading on a global scale, shipping raw materials, resources, and luxury goods between the North Seas and the Indo-Pacific Worlds. This Golden Age saw the growth of many cities within the Dutch Republic such as Amsterdam and Rotterdam and also the spread of Dutch culture into much of the rest of the North Seas World. Contemporaries throughout the North Seas, many of whom were less financially successful, envisioned obtaining the successes of the Dutch and as the subsequent chapters of this work demonstrate, their success led the Dutch into direct conflict and emulation from many of those same people and countries. Of the many ideas, resources, and commodities that united the North Sea World during this period, one of the most important and most financially successful for the Dutch, and many others, was fishing, especially herring fishing.⁸⁴

Scotland's interactions with this larger North Seas World experienced frequent interruptions, and with the Union of Crowns in 1603, one important economic change was that

(Berkeley and Los Angeles, University of California Press, 1992), 138-223; Giovanni Arrighi, *The Long Twentieth Century: Money, Power, and the Origins of Our Times* (London: Verso, 2010), 109-59.

⁸³ Poulsen, *Dutch Herring*, 22; De Vries and Van der Woude, *The First Modern Economy*, 266.

⁸⁴ De Vries and Van der Woude described it as one of the most lucrative trade items along with salt, cloth, and wine and discussed the economic ramifications of its collapse in the mid-seventeenth century. See *The First Modern Economy*, 243-47.

Scotland now followed England into war. This meant that wars against the Dutch between the 1650s-70s and wars against France from the 1680s to 1710s removed several key Scottish trading partners from the equation, in addition to making overseas trade more dangerous for Scottish ships. This did provide more opportunities for smuggling, but the potential rewards of smuggling were also met with increased disruptions like piracy and naval blockades. One major result of this was that Scotland gradually acquired a larger dependence on the English market for the sale of its products than it previously had. This is not to say that England was always Scotland's largest trading partner during this period, since Scots regularly traded throughout the North Sea, Baltic, and even Atlantic, but this did mean that England became more vital to Scottish trade as consumers or through influence, especially as the century drew to a close.

One prime example tying together many aspects of the North Seas World was the so-called Glorious Revolution of 1688. Because of James II's differing religious and economic policies, English statemen invited the Dutch Stadtholder William and his wife Mary to govern the English and subsequently Scottish and Irish thrones. William was no stranger to conflict and crisis, as he was a major political figure during the Rampjaar or "disaster year" in 1672, which saw much of the Dutch Republic overtaken by its enemies and internal turmoil. The decision to flood parts of the Netherlands may have stalled the enemy advance, however, the consequences of these events signaled the beginning of the Dutch Republic's declining fortunes.⁸⁵ After receiving an invitation to stop James II's religious and economic policies, William and Mary sailed across the sea into England and eventually won the thrones. Although this "revolution" might have helped secure the Scottish Kirk, it did little to help Scotland's North Seas trade, as

⁸⁵ Adam Sundberg, "Floods, Worms, and Cattle Plague: Nature-induced Disaster at the Closing of the Dutch Golden Age, 1672–1764" PhD., University of Kansas, 2015, 29-36.

William III pushed Scotland into the Nine Years' War with France. This brought with it the loss of trade to France, increased dangers to shipping from French privateers, increased taxes at home to pay for the war, and the warfare and disruption of trade brought losses of men and materials from merchant communities along the coasts. Baltic Scottish trade also dropped during the war having previously made up 27% of all British trade there, but during 1693-97 it fell to 8%, though this also could be a result of a decline in available goods to trade with the decreased agricultural yields of the 1690s.⁸⁶

War was not the only factor in Scotland's trading difficulties and the economic decline of the North Seas World by the end of the century. The rise of European mercantilism and with it the protection of domestic industries increased tariffs and made it so Scotland had no surplus in the balance of trade with any larger trading nation, except with England.⁸⁷ One of the most detrimental examples were the Navigation Acts of the 1660s. The two governing administrations of England and Scotland did not always agree over trade as English economic and foreign policy frequently went against what was best for Scotland's economy. The Navigation Acts followed the mercantilist principles of the seventeenth century and served to increase English trade overseas, improve revenue, rule the colonies, promote shipping and manufacturing, and improve the English balance of trade. Although these Acts initially targeted Dutch traders, they effectively considered Scots as aliens in English trade and shut out the Scots from several English markets. The English were not alone, as France banned the Scottish fishing trade in 1689 and it would later ban woolen cloth from Scotland. In addition, Scottish coal had lost markets in

⁸⁶ Whatley, *Scots and the Union*, 160; P. W. J. Riley, *The Union of England and Scotland: A Study in Anglo-Scottish Politics of the Eighteenth Century* (Manchester: Manchester University Press, 1979), 198-99.

⁸⁷ Whatley, *Scots and the Union*, 160.

Flanders and France, and it faced increased tariffs in Rotterdam.⁸⁸ In response, Scottish merchants began conducting much more clandestine trade, especially in the Atlantic. Goods like tobacco and sugar from the Americas were brought into Scotland and grains were exported to Ireland.⁸⁹

By the end of the century, except in the east, Europe had become a collection of composite states backed by manufacturing, conquests, and tariffs. Without these, Scottish trade and industry was falling behind, and specie remained elusive. For the two decades until the Union, Scottish trade declined significantly, and many gains made since the restoration ceased. Chapters three through seven explore four major reasons for this decline in trade; almost annual warfare that disrupted trade and removed workers; more frequent environmental change and climatic fluctuations that produced grain shortages; rising foreign tariffs that shut out Scottish trade in several markets; and the collapse of larger economic ventures, like overseas colonies.⁹⁰

Alan I. Macinnes has argued that the Navigation Acts switched the center of the debate over union from confessional to commercial matters.⁹¹ A commercial confederation was indeed discussed in 1664, shortly after Charles II came to the throne, but little came of this until 1668 and, even then, it was only really concerned with tariffs and the balance of trade between Scotland and England and not necessarily with the political and economic union of the two sides.⁹² While the Navigation Acts and tariffs certainly increased the importance of commercial interests between Scotland and England, as it became increasingly difficult for Scottish trade to

⁸⁸ Whatley, *Scots and the Union*, 164.

⁸⁹ Whatley, *Scots and the Union*, 113; Macinnes, *Union and Empire*, 181-200.

⁹⁰ Several historians have made these points with each emphasizing different aspects. One of the more recent exceptional works is Whatley, *Scots and the Union*, see specifically, 139.

⁹¹ Macinnes, *Union and Empire*, 83

⁹² Macinnes, *Union and Empire*, 83.

find new markets. However, commercial interests, like religion, politics, and the environment, were one of many integral factors.

Scotland and the General Crisis

Two common themes during the seventeenth century for societies around the world were that of war and destruction. Scotland fits within the rest of the globe which has now become known as a time of General Crisis, even a global crisis. The century was bookended with climatic fluctuations, in part the result of volcanic eruptions, that saw dearth, famine, and death for millions across the globe. The 1600 eruption of Peru's Huaynaputina decreased global temperatures and for the next few years brought poor harvests. In the two years after that eruption, Russia and Estonia saw the death of over 500,000 people, though some estimates have it as high as 2,000,000, China experienced epidemic outbreaks, the result of famine from cooling, severe frosts, and abnormal snowfall, Korea too saw increased epidemics and abnormal weather, France, Germany, and Peru saw later and decreased wine harvests, Switzerland, Estonia, and Latvia saw some of their coldest winters in the past 500 years, Sweden saw record snowfall and severe flooding, and Japan also saw a more severe winter in 1601.⁹³

The 1690s saw comparable devastation as a series of volcanic eruptions along with ongoing climatic fluctuations induced widespread famines that brought the death of millions in France, Estonia, Finland, Sweden, Italy, Mexico, and Scotland, and food scarcity in many other places. Every decade of the seventeenth century saw catastrophic famines and destruction. In

⁹³ Kenneth Verosub, "Global Impacts of the 1600 Eruption of Peru's Huaynaputina Volcano," *EOS* 89 (2008): 141-42; Jie Fie, David D. Zhang, and Harr F. Lee, "1600 AD Huaynaputina Eruption (Peru), Abrupt Cooling, and Epidemics in China and Korea," *Advances in Meteorology* (2016): 1-12.

Europe, outside of the first and last decades, there was also significant national famine during the late 1610s- early 1620s, most years of the 1640s to early 1650s, and the middle of the 1670s.

With the pressures placed upon governments by food shortages and famine, it comes as no surprise that the seventeenth century also saw increased warfare. Europe saw only three years of official peace in the seventeenth century. The Ottoman Empire saw only ten. All over the world there was an unprecedented level of state breakdowns and revolutions during the seventeenth century. The Chinese empire saw frequent unrest, rebellions and wars became regular in colonial Mexico, Brazil, and many other American colonies, and in Sub-Saharan Africa, revolts took place in Mozambique, Mombasa, and in the Kongo Kingdom.⁹⁴ Although it this serves as only a partial view of the century, Geoffrey Parker listed 49 revolts and revolutions across the Globe from 1635-66.⁹⁵

Hugh Trevor Roper and Eric Hobsbawm began utilizing the term ‘general crisis’ in the 1950s to describe seventeenth-century Europe and for much of the next four decades it took on a Eurocentric meaning. Hobsbawm first utilized the term in 1954 arguing that the European economy suffered this ‘general crisis’ during its last transition from feudalism to capitalism, and also noting its ramifications for population and government.⁹⁶ Trevor-Roper built upon the ideas of Hobsbawm and argued that the seventeenth century was marked by a ‘general crisis’ of the state and its relationship to society, at least in Europe.⁹⁷ Both of these works highlighted the turbulent political, economic, and social conditions throughout Europe during the seventeenth

⁹⁴ Parker, *Global Crisis*, XVII-XIX.

⁹⁵ Parker, *Global Crisis*, XIX.

⁹⁶ E. J. Hobsbawm, “The General Crisis of the European Economy in the 17th Century,” *Past and Present* 5 (1954): 33-53.

⁹⁷ H. R. Trevor-Roper, “The General Crisis of the 17th Century,” *Past and Present* 16 (1959): 31-64.

century. In the years after these two works, historians began to demonstrate other instances of ‘general crisis’ in the seventeenth century. In the 1970s and 80s, S. A. M. Adshead, Frederic Wakeman Jr., and Anthony Reid posited that this crisis extended to China, Japan, Korea, and southeast Asia, denoting major shifts in power and regimes during this period.⁹⁸ Most significantly, China saw large scale rebellion and revolt during the 1640s, leading to the collapse of the Ming dynasty and its replacement by the Manchu-dominated Qing dynasty. More recently Geoffrey Parker has identified the seventeenth century as a veritable “global crisis.”⁹⁹ What all these works have made clear was that the seventeenth century was a time of widespread warfare, revolts, rebellions, disaster, destruction, and death.

Scotland too faced many challenges during this period of crisis. Famine and scarcity struck in the 1600s, 20s, 30, 40s, 70s, and 90s. Although population records are limited, the famine of the 1620s was likely close to as deadly as that of the 1690s in many regions.¹⁰⁰ Scarcity in the 1630s and again in the 1640s was paired with warfare and epidemic disease that also saw large numbers perish. Scotland also saw its fair share of war, revolution, and uprisings. Religious conflict was ongoing throughout the century and played a factor in several wars and rebellions including those of the 1640s and 1688, which saw monarchs executed (Charles I), restored (Charles II), and removed (James II). A series of wars between the English and Dutch

⁹⁸ S. A. M. Adshead, “The Seventeenth Century Crisis in China,” *Asian Profiles* 1 (1973): 271-80; S. W. Atwell, “Some Observations on the Seventeenth-Century Crisis in China and Japan,” *JAS* 45 (1986): 223-44; Frederic Wakeman, Jr., *The Great Enterprise: The Manchu Reconstruction of Imperial Order in Seventeenth-Century China* (Berkeley and Los Angeles: University of California Press, 1985); Wakeman, “China and the Seventeenth-Century World Crisis,” in *Telling Chinese History: A Selection of Essays* (Berkeley and Los Angeles: University of California Press, 2009), 1–26; Anthony Reid, “The Seventeenth-Century Crisis in Southeast Asia,” *Modern Asia Studies* 24 (1990): 639-59;

⁹⁹ See Parker, *Global Crisis*.

¹⁰⁰ Flinn, *Scottish Population History*, 119-29.

and French drew Scotland into larger conflict in several years between 1650-1700. The frequent scarcity, famine, and periods of political unrest all served to slow the development of the Scottish economy, which stagnated for much of the century, except for the Restoration period (1660s-1680s).

Seventeenth-century Scotland also saw thousands tried and hundreds executed for witchcraft. Between 1661 and 1662 over 600 people were accused and likely over 100 executed during this one-year period.¹⁰¹ Part of this lay in the religious fervor brought about by Protestantism, but this too was also the result of the tumultuous times as political change, dearth, and climatic changes led many to an early grave. The “Glorious Revolution” brought little relief, as William and Mary’s forces fought and defeated in 1690 in Scotland an army loyal to James II, but this only served to inflame sectarian conflict. With the outbreak of the Nine Years’ War with France, the threat of a Franco-Jacobite invasion seemed real enough that the Kirk sponsored fasts in 1692. Climate-induced scarcity worsened, and along with it came increased Highland raiding into lowland areas. In 1692, Williamite soldiers killed more than 30 Scottish men, women, and children in the Glencoe Massacre, which did little to endear Scots to William and Mary.¹⁰² By the end of the century Scotland endured one of its worst famines in recorded history as multiple years of harvest failure brought death to at least tens of thousands and suffering for many more.

Given the subject matter of this work, I would be remiss if I did not mention the climatic and environmental changes during the seventeenth century, but to do so requires a bit more explanation and a closer look at some of the larger climatic changes going on across the globe. Chapter two explores those climatic parameters in more detail, explaining their potential causes

¹⁰¹ Brian Levack, “The Great Scottish Witch Hunt of 1661-1662,” *Journal of British Studies* 20 (1980): 90-108.

¹⁰² Whatley, *Scots and the Union*, 130-31.

and providing an overview into their relationship to Scotland during the seventeenth century. In doing so it makes a case for circa 1570-1720 becoming a new periodization of climatic change, the Global Little Ice Age.

CHAPTER 2

The Climate of Crisis and Union: Scotland and the North Atlantic during the Global Little Ice Age circa 1570-1720

David Crawford's account of Scotland from April 1698 displayed a troubling reality, that "the whole country is in a bad condition... all things here are very backward, I never saw worse weather in January for frost and snow which looks like a plague for in Alendale and Leomahag they have no fother [fodder] for the beasts that labours [and] the ground has no seed to sow what is labored. They have had a very bad years and this looks worss then any the Lord pitie it."¹ Historians utilize examples from documentary sources like the one above to create narratives emphasizing the human dimensions of climate change and variability and the reciprocal relationship between culture and the environment. The passage above suggests that at least some in Scotland faced significant hardships from environmental extremes by the end of the 1690s. Yet, taken by itself, this example does not show if this period was different from any other, or what the climatic and environmental contexts were for the period of this larger study, or how they compared to conditions before and since. Understanding why the 1690s in particular, and significant parts of the seventeenth century in Scotland were so devastating, requires context and a careful examination of causality. This chapter provides that climatic context, highlighting changes and variability in the Scottish climate over the past millennium and then focusing on the second half of the seventeenth century. By examining a critical causal factor for the upheavals of the age, this chapter sets the stage for many of the case studies and examples considered in

¹ NRS, GD406/1/4245 [David Crawford], Hamilton, to the earl of Arran, 30 Apr. 1698.

subsequent chapters, and it also demonstrates the importance of the Global Little Ice Age as a more precise and useful periodization than the conventional Little Ice Age.

Providing this context is not a straightforward task and reveals two larger themes of this chapter needing clarification. The first, highlights one of the important themes of the work; that what happened within the geographical boundaries of Scotland was frequently influenced by events or atmospheric conditions outside of Scotland. As this chapter will demonstrate, the Scottish climate did not operate and respond to conditions that were solely within the borders of Scotland or even the North Seas World. Therefore, the emphasis of the chapter changes focus, with a close examination of events within the larger context of the globe or the Atlantic, and then zooming in to study the significance this had within Scotland. Doing this requires some attention to the periodization of a key idea: the Global Little Ice Age.

The second theme of this chapter centers on the physical environmental causes for the climatic changes during the Global Little Ice Age. It explores climatic reconstructions, and how historians utilize these reconstructions, since much of the climate record of Scotland during the past millennium falls outside of regular instrumental measurements. Since instrument records or other overt descriptions of Scotland's climate are not extant for much of the past millennium, historians must rely upon climate reconstructions from new physical 'archives.' Traditionally, historical archives consisted of documents written by contemporary authors of the period, or event, the historian studied. With the development of environmental and climate history in the second part of the twentieth century, the idea of an 'archive' and the traditional role of sources was redefined, and historians and climate scientists now utilize 'natural' archives to help in their reconstructions of previous environments.

This chapter utilizes the skill sets of both climate historians and historical climatologists and implements ideas from environmental and climate history. For instance, in each of these fields practitioners reconstruct past climates or environments, they study societal responses to these variations, and they attempt to show the interconnected relationship between humans and their environments. Climate historians, especially, study the interaction of humans and climate through historical archival sources, data from documentary sources, and natural indirect references or proxy data.² The following section provides a brief introduction into the origins of climate history within the context of the British Isles, demonstrating how it has become integrated within environmental histories, and gives a closer examination of the ‘natural’ archives that historians now utilize more frequently to help in reconstructing the Scottish climate of the last millennium.

The Little Ice Age and Climate Archives of the Past Millennium

During the past millennium, global temperatures have seen two warm periods. There was an initial warmer period, which was more predominant in the northern hemisphere, more commonly known as the medieval warm period or the medieval climate anomaly, and, more recently, there has been a return to a rapidly warming period with temperatures not seen in many places in the climatological record during the past millennium.³ In between those two warm periods, there was cooling. That cooler period is often referred to as the Little Ice Age.

The Little Ice Age. A term frequently utilized by historians and climate scientists to signify cooling at some point in the past 1,000 years, at some place on the Earth. Given the

² See Mark Carey, “Climate and History: A Critical Review of Historical Climatology and Climate Change Historiography,” *Wiley Interdisciplinary Reviews: Climate Change* 3 (2012): 233-249.

³ J. Luterbacher, E. Xoplaki, D. Dietrich, R. Rickli, J. Jacobeit, C. Beck, D. Gyalistras, C. Schmutz, and H. Wanner “Reconstruction of Sea Level Pressure Fields Over the Eastern North Atlantic and Europe Back to 1500,” *Climate Dynamics* 18 (2002): 546

opaque and vague nature of the previous “definition,” perhaps it comes as little surprise that it has been a challenge finding an agreement over the periodization of the Little Ice Age. For instance, Ø. Paasche and J. Bakke (2010) argued that if you asked 10 different scientists to define or periodize the Little Ice Age, you would get 10 different answers.⁴ The same is true of historians. Sam White documented this more recently (2013) in an overview of several different so-called Little Ice Age periods circa 1300-1850, 1310s-1810s, 1400-1850, and 1580-1710.⁵ While the “definition” above of the Little Ice Age was left intentionally vague and opaque, in many ways, it provides an effective analogy of the history of the term and the role of climate archives in reconstructing the Earth’s climate over the past millennium.⁶

⁴ Ø. Paasche and J. Bakke, “Defining the Little Ice Age,” *Climate Past Discussion* 6 (2010): 2159–2175; They also put LIA at circa 1400–1800, and although they utilized a couple of records from equatorial regions and Pacific, it was still heavily reliant upon northern hemisphere data.

⁵ Sam White, “The Real Little Ice Age,” *Journal of Interdisciplinary History* 44 (2013): 327–52; His point was not as much on the periodization, but rather that one actually existed at some point during these periods. See also Ulf Büntgen and Lena Hellmann, “The Little Ice Age in Scientific Perspective: Cold Spells and Caveats,” *Journal of Interdisciplinary History* 44 (2014): 353–68.

⁶ For a brief overview of the use of the term the Little Ice Age, see H. H. Lamb, *The Early Medieval Warm Epoch and Its Sequel* (Amsterdam: Elsevier, 1965); H. H. Lamb, *Climate, Present, Past, and Future* (London: Methuen, 1977); Christian Pfister, *The Little Ice Age: Thermal and Wetness Indices for Central Europe* ([Cambridge (Mass.)]: Massachusetts Institute of Technology, 1980); Robert I. Rotberg, and Theodore K. Rabb, *Climate and History: Studies in Interdisciplinary History* (Princeton, N.J.: Princeton University Press, 1981); Jean M. Grove, *Little Ice Ages: Ancient and Modern* (London [u.a.]: Routledge, 2004); Raphael Neukom, Joëlle Gergis, David J. Karoly, Heinz Wanner, Mark Curran, Julie Elbert, Fidel González-Rouco et al., “Inter-hemispheric temperature variability over the past millennium,” *Nature Climate Change* 4, no. 5 (2014): 362–367; Emmanuel Le Roy Ladurie, *Times of Feast, Times of Famine : a History of Climate Since the Year 1000* (Garden City (N.Y.): Doubleday, 1971); Wolfgang Behringer, *A Cultural History of Climate* (Cambridge: Polity, 2010); Geoffrey Parker, *Global Crisis: War, Climate Change and Catastrophe in the Seventeenth Century* (New Haven: Yale University Press, 2013); Sam White, *The Climate of Rebellion in the Early Modern Ottoman Empire* (Cambridge and New York: Cambridge University Press, 2011); Dagomar Degroot, *The Frigid Golden Age Climate Change, the Little Ice Age, and the Dutch Republic, 1560-1720* (Cambridge and New York: Cambridge University Press, 2018); Richard Cornes, “Early Meteorological Data from London and Paris: Extending the North Atlantic Oscillation Series,” PhD thesis, University of East Anglia, 2005; Richard Cornes, Phil D. Jones, Keith R. Briffa, and Timothy J. Osborn. “A Daily Series of Mean Sea-Level Pressure for Paris, 1670-2007.” *International Journal of*

F. Matthes first used the term “Little Ice Age” in 1939. Matthes utilized this term to describe the last 4,000 years of the Holocene which saw both significant advances and retreats of mountain glaciers, especially in the northern hemisphere.⁷ It was very much an interdisciplinary term or idea, utilized more by glaciologists and geologists than by historians, historical climatologists, or climate scientists. By the 1960s, this changed, especially with the work of Jean Grove and H.H. Lamb. While both still commented upon the growth of glaciers, their work most certainly drove the northern hemispheric perspective of the Little Ice Age.⁸ Glaciologists still utilized the term as well during the 1960s and all of these works together placed the Little Ice Age sometime between circa 1300-1950.⁹

Jean Grove traced European and northern hemisphere glacial fluctuations and added to the literature on the Little Ice Age in Europe. It emphasized the importance of climatic extremes in creating a Little Ice Age over slight variations within the climate.¹⁰ While Grove’s work initially focused on glaciers in Europe, it would later expand to examine the climate as well and helps denote a transition from the study of the Little Ice Age from glacial advance to climate.¹¹ By the 1980s Grove utilized proxy sources like ice cores and carbon 14 dating and paired this

Climatology 32 (2012): 1135-1150; D. Wheeler, Garcia-Herrera R., C.W. Wilkinson, and C. Ward, “Atmospheric circulation and storminess derived from Royal Navy logbooks: 1685 to 1750,” *Climatic Change* 101 (2010): 257-280.

⁷ Büntgen and Hellmann, “The Little Ice Age in Scientific Perspective,” 354; Michael Mann, “Little Ice Age,” in eds. Michael MacCracken and John Perry *Encyclopedia of Global Environmental Change Vol. 1, The Earth System: Physical and Chemical Dimensions of Global Environmental Change* (Chichester: John Wiley & Sons, 2002), 504-09.

⁸ Jean M. Grove, “The Little Ice Age in the Massif of Mont Blanc,” *Transactions of the Institute of British Geographers* (1966): 129–143; H.H. Lamb *Climate: Present, Past and Future* (London: Methuen, 1972); Lamb, *Climate, History, and the Modern World* (London: Routledge, 1995); Lamb, *The English Climate* (London: English Universities Press, 1964).

⁹ Büntgen and Hellmann, “The Little Ice Age in Scientific Perspective,” 355.

¹⁰ See Grove, *The Little Ice Age* (London: Methuen, 1988).

¹¹ John Matthews and Keith Briffa, “The Little Ice Age’: Re-Evaluation of an Evolving Concept,” *Geografiska Annaler*. 87 (2005): 18-20.

with documentary accounts showing the effects of a changing climate on society, to argue that the Little Ice Age was a global event beginning in the fourteenth century.¹²

Grove's contemporary, H. H. Lamb, provided new climatological data for use by historians studying environmental histories of Europe and the Little Ice Age. His work was in part responsible for changing the way historians and other fields viewed climate, from a relatively static background to history to one of emphasizing weather events and rapid climatic change. Lamb argued that until the mid-part of the twentieth century, much of society and even many climate historians viewed climate as "average weather" and that there were "normal" averages that the climate would return to at any given time or place. Lamb's work made weather events and climate historical and demonstrated that there were variations and trends in the climate over time.¹³ Lamb's emphasis on a changing climate shaped the focus of many later works on climate studies that showed the influence of climate on society.¹⁴

The same was true of Gordon Manley's work. In the 1960s, though some of his work was presented as early as the late 1940s, Gordon Manley also began utilizing documentary records to compare glacial advances to temperature extremes in central England during the seventeenth through nineteenth centuries. Manley published monthly temperature means for England based upon early instrumental records and provided historians and climatologists with the ability to see climatic changes in England over the course of 300 years and correlate this with major social and

¹² Grove, *The Little Ice Age*, especially chapter 17.

¹³ H.H. Lamb, "Our Changing Climate, Past and Present," *Weather* 14 (1959): 299-318. See also Fleming's *Historical Perspectives on Climate Change*.

¹⁴ Lamb built upon the studies of geologists and scientists including T.C. Chamberlin, G.S. Callendar, and Svante Arrhenius. See James Rodger Fleming, "T. C. Chamberlin: Climate Change, and Cosmogony," *Studies in History and Philosophy of Modern Physics* 31 (2000).

political changes.¹⁵ Manley's references to the Little Ice Age in quotes during the 1960s, also highlights the novelty of the term amongst climate historians, though it still emphasizes the northern hemisphere.¹⁶ Manley also allows us to look at early source materials for reconstructing past climates, especially documentary sources. Documentary sources worked well for comparing social and political changes with changes in temperature, but they had their limitations since the earliest temperature records only went back to the sixteenth century, and even those were not kept consistently.

Documentary sources could also be utilized to show climatic changes and variability indirectly, like the harvest time for grapes and other agricultural products. By the early 1960s, Emmanuel Le Roy Ladurie's *Times of Feast, Times of Famine: A History of Climate Since the Year 1000* also began to explore possible social, political, and economic problems created by climate changes through these documentary sources.¹⁷ Ladurie studied the climate of Europe from the eleventh to the twentieth centuries focusing on glaciers in the Alps, while utilizing an approach that emphasized a changing climate rather than a static one influencing society. Ladurie acknowledged earlier cooler periods during the fourteenth century, but argued that the Little Ice Age began with the alpine glacial advance in the sixteenth century and did not end until glacial retreat in the 1890s.¹⁸ Much of his evidence for this periodization of the Little Ice Age came

¹⁵ See Gordon Manley, *Climate and the British Scene* (London: Collins, 1952); Gordon Manley, and Alan R.H. Baker, *Man Made the Land: Essays in English Historical Geography* (Totowa N.J.: Rowman and Littlefield, 1973); Gordon Manley, M. J. Tooley, and G. M. Sheail, *The Climatic Scene* (London: Allen & Unwin, 1985).

¹⁶ Gordon Manley, "Some Consequences of the Relation Between Glacier Variations and Climatic Fluctuations in Britain," *Journal of Glaciology* 1 (1950): 352-56.

¹⁷ Emmanuel Le Roy Ladurie, *Times of Feast, Times of Famine: A History of Climate Since the Year 1000* (Garden City, N.Y.: Doubleday, [1967] 1971)

¹⁸ Ladurie, *Times of Feast, Times of Famine*, 8-9.

from work studying the harvest records in France and documentary accounts of glacial advances.¹⁹

Documentary sources are helpful in creating climatic reconstructions because they present human perceptions of climatic variations and its effects and can be further compared to natural proxies and climate models to help with calibration. There are two basic types of documentary sources where historical climatology is concerned. Direct sources such as weather journals or diaries provide direct descriptions of weather events and may even record an extended series of daily weather observations, sometimes combined with instrumental observations, like with Manley's temperature records of England. However, very few of these sources exist outside the lifetime of the individual keeping the record. Indirect sources, or observations which measure certain events effected by local weather conditions over many years albeit unintentionally, are often kept for much longer periods and are usually extant in government and other administrative records, as Ladurie utilized. Some of these records can include the harvesting date of grain or grapes (wine), the price of foodstuffs, the thawing and subsequent opening of rivers or seaports, or the amount of time needed for sailing journeys.²⁰ For example, if the harvest date of grapes in northern France during the sixteenth century fell around early September, it provides a baseline for the 'normal' harvesting conditions at that time. Yet, if thirty years later the harvest date was pushed back into early October, this demonstrates a change that could have several causes, including climate change and variability. These records, like

¹⁹ Christian Pfister also studied a similar topic in Switzerland by the end of the 1970s but utilized paleoclimatic sources as well as documentary ones to show the impacts of climatic changes in the Early Modern Period. See, Christian Pfister, *The Little Ice Age: Thermal and Wetness Indices for Central Europe* (Cambridge: MIT Press, 1980).

²⁰ See also R. Brázdil, C. Pfister, H. Wanner, H. V. Storch, and J. R. Luterbacher, "Historical Climatology In Europe--The State Of The Art," *Climatic Change* 70 (2005): 363-430.

those of grape harvest dates, are then calibrated against other direct or instrumental records to create a climate proxy.

The other major type of sources for climatic and environmental reconstruction come from so-called natural archives or proxy sources, which serve as markers of past climate when there are no direct observation records. They can include tree rings, ice cores, stalagmites, lake and ocean sediments, pollen profiles, corals, mollusk shells, and volcanic ash. These sources all provide quantifiable physical records that can be related to past climatic conditions and then calibrated against more recent instrumental records to see how well they reflect actual conditions. Once calibrated, a reconstruction of a previous climate can be created utilizing the patterns or information gained by comparing the physical proxy source with the instrumental records. Take ice cores for example. Ice cores consist of accumulated layers of frozen precipitation (snow) and pockets of air. Snow falls to the surface and the snow and air become packed more tightly with each subsequent snowfall. Over time they are compressed into ice that traps bubbles of gas. If clearly distinguishable, each layer represents a different year of the earth's climate. The amount of O^{18} and other stable isotopes trapped in the air of the different layers of an ice core can vary depending on warmer or cooler temperatures at the time of the original snow. Climate scientists can measure these past amounts of these stable isotopes in comparison with more recent observations. This information can identify temperatures in periods without instrumental records and allow researchers to reconstruct past climates and provide an idea of climatic variations. As useful as this is, no single proxy source can by itself provide a reconstruction of a past climate fully comparable to modern measurements, which is why most

historical studies, including this one, typically utilize multiple proxies to reconstruct past climates and documentary sources to calibrate the natural sources.²¹

The use of these proxy sources allowed climate scientists and historians greater access to reconstructing past climates, especially in areas without continuous documentary records. By the 1980s climate historians like Christian Pfister and Jean Grove were now able to utilize these proxy records in addition to documentary sources to show the effects of climatic changes on society.²² More recently, this has helped some scholars identify problems with the periodization of the Little Ice Age, especially as a global term. By the turn of the century, the recognition of this northern hemisphere bias in the use of the term “Little Ice Age” became more prevalent. For instance, climate scientist Michael Mann in his 2002 article on the Little Ice Age, acknowledged the northern hemisphere, and especially European bias in his periodization of the Little Ice Age, during the mid-fifteenth to nineteenth centuries.²³

More recently, the Little Ice Age had begun to take on a multi-faceted meaning. While the longer periodization of the Little Ice Age circa 1300-1850 is still prevalent, there has been an increasing emphasis on the intensity of cooler temperatures during the late sixteenth and into the seventeenth centuries. Historian Geoffrey Parker’s *Global Crisis* denoted just this factor while calling this cooling a global event. He also stressed the importance of climate variability during the General Crisis, a period of instability and conflict within Europe during the seventeenth

²¹ That is not to say that one relies upon the documentary sources to fit the reconstructions. They are utilized more as a comparison. If the reconstruction fits with the documentary sources, then it is most likely that the reconstruction has a high degree of accuracy and that model can then be utilized for periods without documents. If they do not agree, then it is important to explain why, and then determine if the documentary sources missed an event, or more likely, if there is an error in the reconstruction.

²² See Pfister, *The Little Ice Age*; Grove, *The Little Ice Age*.

²³ Mann, “Little Ice Age,” 504.

century, by blending the emphasis of the work on climate, society, and warfare.²⁴ While attempting to explain why societies in the seventeenth century rebelled more frequently, Parker emphasized the importance of climatic change in creating circumstances for conflict and social changes. Dagomar Degroot's *The Frigid Golden Age* highlights many of the same themes, including the intensity of cooler temperatures during the seventeenth century. Degroot also included an additional element, suggesting that how societies responded to those climatic changes and variability played an important role in their success or failure. What this brief overview of the Little Ice Age suggests, is that the foundations for the periodization of the Little Ice Age are shifting about as quickly as the glaciers their periodization was originally based upon.

The Global Little Ice Age

Periodization for the Little Ice Age has typically been based upon northern hemisphere and particularly European cooling trends, and its origins are typically placed sometime during the period between 1300-1550, though this delineation is often vague. More recently, however, the Little Ice Age has acquired a more multifaceted, geographically expansive, but temporally more limited meaning. An alternative Little Ice Age periodization, what this work refers to as the Global Little Ice Age, runs from the mid-sixteenth century to the early eighteenth century (circa 1570-1720). To distinguish between the old Eurocentric and new definitions, I will refer to the former as the “conventional Little Ice Age” and the latter as the “Global Little Ice Age.”

²⁴ See Parker's *Global Crisis: War, Climate Change and Catastrophe in the Seventeenth Century* (New Haven: Yale University Press, 2013). For more on the General Crisis see Eric Hobsbawm, “The General Crisis of the European Economy in the 17th Century,” *Past & Present* 5 (1954): 33-53; Hugh Trevor-Roper, “The General Crisis of the 17th Century” *Past and Present* 16 (1959); Jack Goldstone, *Revolution and Rebellion in the Early Modern World* (Berkeley and Los Angeles: University of California Press, 1991).

This work emphasizes the Global Little Ice Age, which took place circa 1570-1720, when sustained cooling began in both hemispheres and continued until the early part of the eighteenth century. This periodization defines the Global Little Ice Age by when it was at its most severe across the whole globe and when both hemispheres were in a cold phase together. In many ways, this was *The Little Ice Age* at least for most places across the earth, and this was especially true for Scotland. Cooler temperatures prevailed after this period, but that is better identified as a cooling period unique to the northern hemisphere, especially northern and central Europe, and not a global phenomenon. Figure 2.1 is based upon the climate reconstructions of Neukom, et. al. (2014) and demonstrates some of the differences and variations in the two Little Ice Age periodizations this work utilizes.²⁵ The two colors in the figure represent the changes from the average temperature over the course of the past millennium in the Northern (blue) and Southern (orange) hemispheres. While some have started the Little Ice Age as early as the fourteenth and even thirteenth centuries, figure 2.1 demonstrates how this was only true for one hemisphere. The same is true for those that continue the Little Ice Age on until the nineteenth century. While there were periods of sustained cooling in both hemispheres, there were significant fluctuations in the eighteenth and nineteenth centuries in both hemispheres, which makes calling this period a Little Ice Age, for the entirety of the globe during this period, problematic. It was only between the mid sixteenth and early eighteenth century that this Little Ice Age was Global and truly felt across both hemispheres. Figure 2.1 and table 2.1 also denote how the Global Little Ice Age

²⁵ Raphael Neukom, Joëlle Gergis, David J. Karoly, Heinz Wanner, Mark Curran, Julie Elbert, Fidel González-Rouco, Braddock K. Linsley, Andrew D. Moy, Ignacio Mundo, Christoph C. Raible, Eric J. Steig, Tas van Ommen, Tessa Vance, Ricardo Villalba, Jens Zinke, and David Frank, "Inter-hemispheric temperature variability over the past millennium" *Nature Climate Change* 4 (2014): 362-67; Data from https://www1.ncdc.noaa.gov/pub/data/paleo/contributions_by_author/neukom2014/SH_Fig2_recons_Ens-means_wrt1000-2000.txt.

(1570-1720) saw the most extreme temperature departures from the last millennium in both hemispheres, and it covers many of the periods of ‘crisis,’ of the seventeenth century.

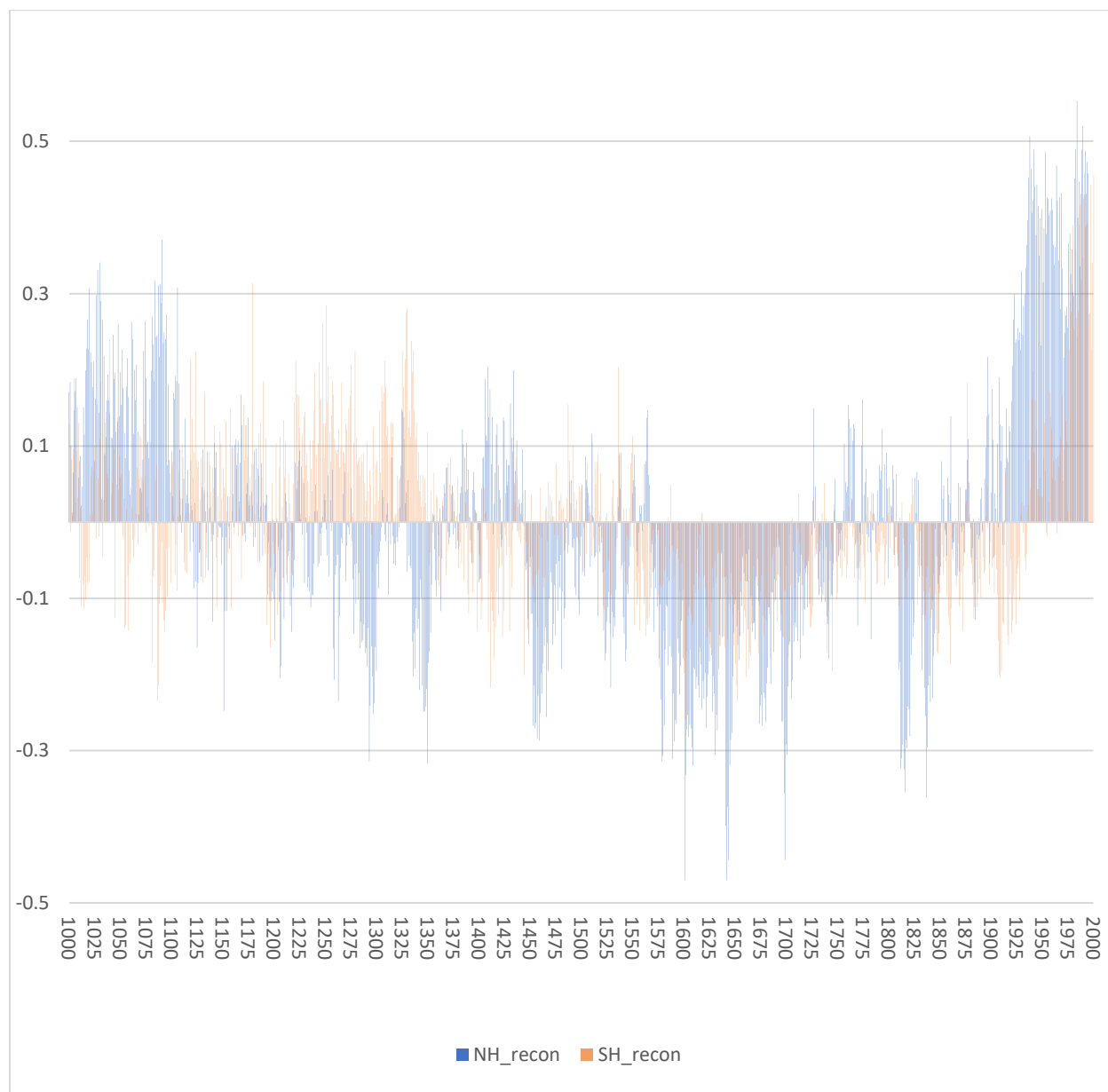


Figure 2.1. Global Temperature Reconstructions. Hemispheric departures from the millennium average with Y axis measuring temperature departure in °C. *Source:* Data adapted from Raphael Neukom, Joëlle Gergis, David J. Karoly, Heinz Wanner, Mark Curran, Julie Elbert, Fidel González-Rouco, Braddock K. Linsley, Andrew D. Moy, Ignacio Mundo, Christoph C. Raible, Eric J. Steig, Tas van Ommen, Tessa Vance, Ricardo Villalba, Jens Zinke, and David Frank, “Inter-hemispheric temperature variability over the past millennium” *Nature Climate Change* 4 (2014): 362-67; https://www1.ncdc.noaa.gov/pub/data/paleo/contributions_by_author/neukom2014/SH_Fig2_recons_Ens-means_wrt1000-2000.txt.

Table 2.1. Extreme Cold Periods in Both Hemispheres by Century

16 th Century	17 th Century
1594, 1596, 1597, 1598, 1599	1600, 1601, 1602, 1603, 1619, 1620, 1621, 1622, 1623, 1635, 1636, 1639, 1640, 1641, 1642, 1643, 1644, 1645, 1646, 1671, 1672, 1673, 1674, 1675, 1676, 1677

Source: Neukom et al. (2014) supplemental material 8.

Note: Table lists the extreme cold periods in both hemispheres from Neukom et al. simulations. Extreme temperatures are departures from the 1000-2000 baseline, or averages exceeding one standard deviation in at least 33% of reconstruction models that utilized a 10-year running temperature average.

Although, cooler temperatures are being emphasized during the Global Little Ice Age, occasionally there were short periods of regional warming and marked shifts between wet and dry.²⁶ Seasonal expressions of some of these variations and the problems that ensued presented additional challenges and should not be forgotten or make these periods appear solely as times of colder weather. Even during periods of ‘extreme’ cold, seasonal climates could be quite variable. For instance, in the case of Scotland and much of Europe, temperature reconstructions for the Global Little Ice Age saw many summers that were no cooler than the twentieth century averages.²⁷ In fact, several documentary accounts from Scotland, which appear in chapter five, remarked upon the heat and drought of summers in the second part of the seventeenth century. Some of the most extreme cold periods within Europe that occurred at the end of the seventeenth century saw spring temperatures depart around 1°C from twentieth-century averages. Yet, the

²⁶ Jean Grove, “The Onset of the Little Ice Age,” in Phil Jones ed., *History and Climate: Memories of the Future?* (New York: Kluwer Academic, 2001), 153-185.

²⁷ Jürg Luterbacher, et al, “European Seasonal and Annual Temperature Variability, Trends, and Extremes Since 1500,” *Science* 303 (2004): 1502.

same period also saw many summers that were at or above twentieth-century averages.²⁸ As several later chapters will demonstrate, the seasonal expressions of the climatic changes, like cooler temperatures in spring or autumn and warmer temperatures in summer, were extremely detrimental to agriculture and other ways of life.²⁹ Additionally, chapters three, five, and six demonstrate how there could be marked local and regional variance between locations, even as close as 100 km apart, which varied greatly and produced significantly different weather and climate patterns.³⁰

The rest of the chapters demonstrate that the Global Little Ice Age had a significant influence on human events, particularly in the late sixteenth to early eighteenth century. While debate remains surrounding the periodization and parameters of the conventional Little Ice Age, there is more of a consensus of the intensity of this cooling during the seventeenth century. Several more recent works by White, Parker, and Degroot all referenced these increased climatic changes and the resulting political, economic, and social challenges during the seventeenth century. This chapter and the remainder of this dissertation will primarily use the Global Little Ice Age (circa 1570-1720) as its frame of reference, both because of the clarity it provides to discussing cause and effect, and for its greater explanatory power in understanding the influence of climate change on the fortunes of Scotland, England, and the North Seas World. The

²⁸ Xoplaki, et al, “European Spring and Autumn Temperature Variability,” 2.

²⁹ With this in mind, perhaps utilizing the term “Little Ice Age” be it Global or conventional could be altogether problematic. Perhaps a better phrasing might be an early modern climate anomaly or measuring the Global Little Ice Age by how climatic change influenced global human events.

³⁰ See R.A. Bryson, and R.U. Bryson, “High resolution simulations of regional Holocene climate: North Africa and the Near East,” *NATO ASI Series I Global Environmental Change* 49 (1997): 565–594; Willie Soon, Sallie Baliunas, Craig Idso, Sherwood Idso, and David R. Legates, “Reconstructing Climatic and Environmental Changes of the Past 1000 Years: A Reappraisal,” *Energy & Environment* 14 (2003): 291.

subsequent sections explore the causes of this Global Little Ice Age and how it affected Scotland and the North Seas World.

How Climate is Created: Generating a Global Little Ice Age

The Global Little Ice Age was the result of several factors including changes in solar irradiance, greenhouse gasses, ocean circulation, and increased volcanism. Day to day and seasonal variations occur regularly across the globe, which reflects the different weather in an area. For example, continental regions can see large temperature fluctuations from day to day, especially during spring and autumn. However, when these variations become patterns, like springs becoming one degree warmer, they begin to portray the climate of an area and demonstrate changes within it. Uneven heating of the earth's surface and the atmospheric and oceanic circulation this creates are the fundamental causal agents of climate and weather.³¹ As climate depends upon factors at many different geographical and geophysical scales, understanding the effects of climatic changes in Scotland during the Global Little Ice Age requires an exploration of variations within the global climate and the more regional climates within the North Seas World, including Scotland.

One of the major factors in determining climate is solar irradiance and the radiation balance, that is, the amount of energy emanating from the sun and the amount of radiation that is reflected or absorbed by the earth's atmosphere. Regional gains and losses depend the most on latitude, and the angle of incident sunshine, but also on stratospheric ozone, clouds, water vapor, airborne pollutants, the concentration of greenhouse gasses, and surface effects. Another crucial determinate of climate are atmospheric and ocean currents. For example, the North Atlantic Current profoundly affects the transfer of heat from lower to upper latitudes and subtle variations

³¹ Lamb, *Climate, History, and the Modern World*, 21.

can have profound implications for weather and climate in northern Europe. One more regional factor of climatic conditions is the local topography. Surface friction, vegetation, mountains, hills, and coasts, and the even more basic difference between land and water, are all influential on the North Seas and Scotland's climate.³²

Solar Irradiance

The most basic determinant of the climate of Scotland and the earth hinges on solar forcing, or variations in the irradiance of the sun itself. The earth receives its energy, from the sun in the form of short-wave radiation. Changes in the amount of solar energy reaching the earth's surface can potentially have a significant effect upon global and regional climates. Many efforts have gone into reconstructing solar irradiance during the last millennium, some of which relied upon sunspot observations recorded in historical documents. Extreme periods of cold during the conventional Little Ice Age (circa 1350-1850) have often been incorrectly linked solely to periods with sunspot minimums, which are related to periods of reduced electromagnetic activity and frequently associated with periods of reduced solar irradiance. Table 2.2 lists the sunspot minimums of the past millennium based upon observations beginning in the seventeenth century and from additional proxies.³³

³² Lamb, *Climate, History, and the Modern World*, 21.

³³ Joel Guiot, Christophe Corona, and Jerome Chave, "Growing Season Temperatures in Europe and Climate Forcings Over the Past 1400 Years," *PLoS ONE* 5 (2010): 1-15.

Table 2.2 Sunspot Minimums

Sunspot Minimum	Years
Oort	1040-1080
Wolf	1280-1350
Spörer	1460-1550
Maunder	1645-1715
Dalton	1790-1820

Most of the historical events examined by this dissertation took place entirely during the Maunder Minimum, a period from circa 1645-1715 that has long been known for the near absence of sunspot observations by European astronomers, which happened to correspond with a period of relatively low temperatures in Europe. However, there are several problems trying to link European sunspot observations with climatic changes including temperature. For instance, much like the conventional Little Ice Age, sunspot minimum records are predominantly from the northern hemisphere and Eurocentric. Additionally, sunspot observations outside of Europe, which during the Maunder Minimum were not infrequent, further complicate the idea of this period being the result of a decline in sunspots.³⁴ Far better proxy estimates measuring solar irradiance can be derived from changing concentrations of beryllium-10 (Be10) in the atmosphere. Historians are now utilizing these newer ‘archives’ especially as they relate to the Global Little Ice Age.

³⁴ Xu, Zhentao, David W. Pankenier, and Yaotiao Jiang, *East Asian Archaeoastronomy: Historical Records of Astronomical Observations of China, Japan and Korea*, (Amsterdam: Gordon & Breach, 2000); J. Luterbacher, R. Rickli, E. Xoplaki, C. Tinguely, C. Beck, C. Pfister, and H. Wanner, “The Late Maunder Minimum (1675-1715) - a Key Period for Studying Decadal Scale Climatic Change in Europe,” *Climatic Change* 49 (2001): 441-462; J.J. Moore, K.A. Hughen, G.H. Miller, and J.T. Overpeck, “Little Ice Age Recorded in Summer Temperature Reconstruction from Varved Sediments of Donard Lake, Baffin Island, Canada,” *Journal of Paleolimnology* 25 (2001): 503-517.

More recent reconstructions of solar irradiance based upon Be10 and C14 levels suggest that a decline in solar forcing was responsible for a tenth to a half of a degree of cooling during the conventional Little Ice Age circa 1350-1850, which includes the Maunder Minimum.³⁵ Steinhilber et al. (2012), Clette et al. (2015), and Kopp, et al. (2016) support this argument for the Global Little Ice Age as well.³⁶ Figure 2.2 which is based upon the data from Kopp and Steinhilber displays the change in solar irradiance from just before the onset of the Global Little Ice Age in the mid-sixteenth century until the mid-twentieth century in comparison with the 1986 solar minimum. The y axis measures the change in w/m^2 of solar irradiance compared to the 1986 solar minimum of 1365.57 w/m^2 . This model demonstrates that there was less solar irradiance during the period designated as the Maunder Minimum. Yet in this reconstruction, solar irradiance was in decline from circa 1637 to 1722, outside of the Maunder Minimum. Other solar irradiance models clearly show that there was less solar illumination during the Maunder Minimum than in other periods, but this decline in solar irradiance was not as strong as was previously argued.³⁷

³⁵ Guiot, et al., “Growing Season Temperatures in Europe and Climate Forcings Over the Past 1400 Years,” 1-15; L.K. Cunningham, Austin, W.E.N., Knudsen, K.L., Eiríksson, J., Scourse, J.D, Wanamaker Jr., A.D., Butler, P.G., Cage, A., Richter, T., Husum, K., Hald, M., Andersson C., Zorita, A., Linderholm, H.W., Gunnarson, B.E., Sicre, M.A., Sejrup, H.P., Jiang, H. and R.J.S. Wilson, “Reconstructions of surface ocean conditions from the northeast Atlantic and Nordic seas during the last millennium,” *Holocene* 23 (2013): 921-935.

³⁶ Frédéric Clette, E. W. Cliver, Laure Lefèvre, L. Svalgaard, and J. M. Vaquero, “Revision of the Sunspot Number(s),” *Space Weather* 13 (2015): 529-30; Frédéric Clette, Laure Lefèvre, Marco Cagnotti, Sergio Cortesi, and Andreas Bulling, “The revised Brussels-Locarno Sunspot Number (1981-2015),” *Solar Physics* 291 (2015): 2733-2761; Kopp, et al (2016) created a revised TSI model based upon the new sunspot model, which shows an increase from what had existed in previous models. G. Kopp, N. Kirvova, C.J. Wu, and J. Lean, “The Impact of the Revised Sunspot Record on Solar Irradiance Reconstructions,” *Solar Physics* n.d, (2016): 1-18.

³⁷ Kopp, “The Impact of the Revised Sunspot Record on Solar Irradiance Reconstructions,” *Solar Physics* (2016): 1-18.

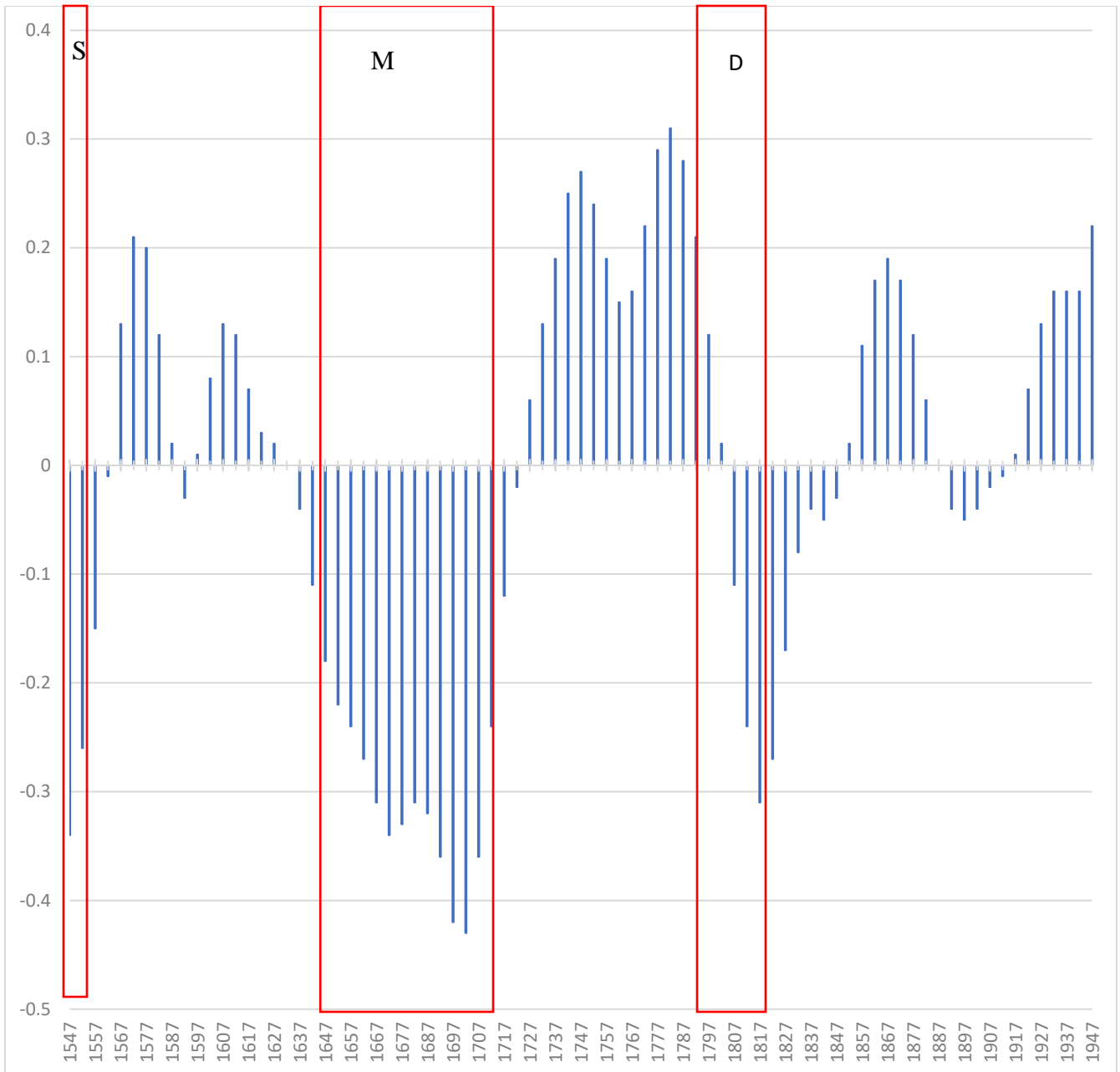


Figure 2.2. Reconstructed variation in total solar illumination measuring changes in w/m² based upon Be10 and C14 utilizing 40 year means in a 10-year resolution calibrated to the 1986 solar minimum. The Maunder, Dalton, and end of the Spörer minima are denoted with red boxes. Note that they do not line up exactly with the traditional periodization of these so-called “sunspot minima.”

Source: Data adapted from G. Kopp, N. Kirvova, C.J. Wu, and J. Lean, “The Impact of the Revised Sunspot Record on Solar Irradiance Reconstructions,” *Solar Physics* (2016): 1-18.

Based upon many of these reconstructions, climate scientists and more recently historians like Dagomar Degroot's *Frigid Golden Age* have posited that this extreme cold during the conventional Maunder Minimum was the result of a decline in solar irradiance, and not sunspot observations. If a decline in solar irradiance played an enhanced role for the decline of temperatures during the Maunder Minimum, then temperatures should have remained lower for the entire period, and perhaps been warmer during preceding decades, but that was clearly not the case. Figure 2.3 displays annual European reconstructed temperatures from 1500-1850. The y axis measures the departure from the 1500-1850 average. The last part of the Spörer minimum as well as the entire Maunder and Dalton minimums are highlighted in red. In each of these periods there are both warmer and cooler temperatures, with the Dalton Minimum seeing more warmer years than cool and the Maunder seeing close to the same number of cold years as warm.

Since most early modern economies depended upon agriculture, figure 2.4 displays the average temperature throughout Europe during the spring and summer growing seasons. It shows that these temperatures were actually above average (compared to 1961-1990) during most of the Maunder Minimum. As figure 2.4 demonstrates, the other solar minimum periods do not display a coherent picture of cool growing season temperatures for any of these periods of low solar activity, or at least one that departs from the general cooling in the northern hemisphere circa 1350-1850.³⁸ Additionally, only during parts of the Spörer minimum and the end of the Maunder minimum was it clearly cold in Europe during these growing seasons, and even then, it was not consistently colder.³⁹ In fact, the Oort minimum occurred during a time of warmer temperatures

³⁸ Guiot, et al., "Growing Season Temperatures in Europe and Climate Forcings Over the Past 1400 Years," 7.

³⁹ Cunningham, et al. "Reconstructions of surface ocean conditions from the northeast Atlantic and Nordic seas during the last millennium," 929; Guiot, et al. "Growing Season Temperatures in Europe and Climate Forcings Over the Past 1400 Years," 7.

in what is referred to as the Medieval Climate Anomaly, or Medieval Warm Period.

Furthermore, the Arctic never saw a prolonged cold period during the Maunder Minimum, which makes the reduced effect of solar irradiance appear even less sound as an explanation for temperature change in the Northern Hemisphere during this period.⁴⁰

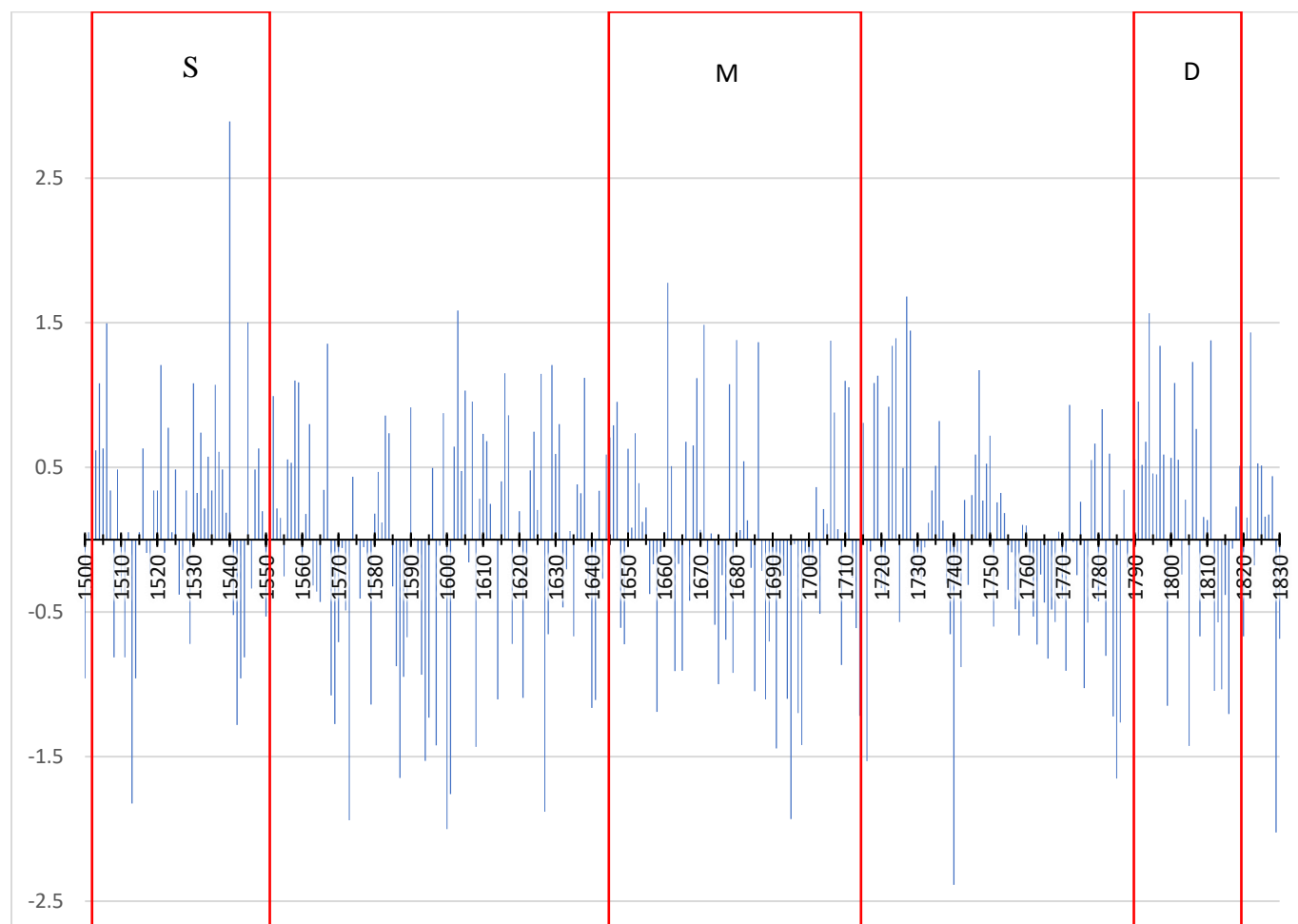


Figure 2.3. European (45-53N, 6-20E) annual temperature departures from 1500-1850 average in °C. Red boxes highlight the end of the Spörer as well as the entire Maunder and Dalton Minima.

Source: Data adapted from P. Dobrovolný, A. Moberg, R. Brázdil, C. Pfister, R. Glaser, R. Wilson, A. van Engelen, D. Limanówka, A. Kiss, M. Halíčková, J. Macková, D. Riemann, J. Luterbacher, and R. Böhm, “Monthly, Seasonal and Annual Temperature Reconstructions for Central Europe Derived from Documentary Evidence and Instrumental Records Since AD 1500,” *Climatic Change*

⁴⁰ Luterbacher, et al., “The Late Maunder Minimum,” 455-56; Moore, et al., “Little Ice Age Recorded in Summer Temperature Reconstruction,” 503-17; See E. Moreno-Chamarro, D. Zanchettin, K. Lohmann, J. Luterbacher, and JH Jungclaus, “Winter Amplification of the European Little Ice Age Cooling by the Subpolar Gyre,” *Scientific Reports* 7 (2017): 1-8.

101 (2010): 69-107;

<https://www1.ncdc.noaa.gov/pub/data/paleo/historical/europe/dobrovolny2010temperature.txt>.

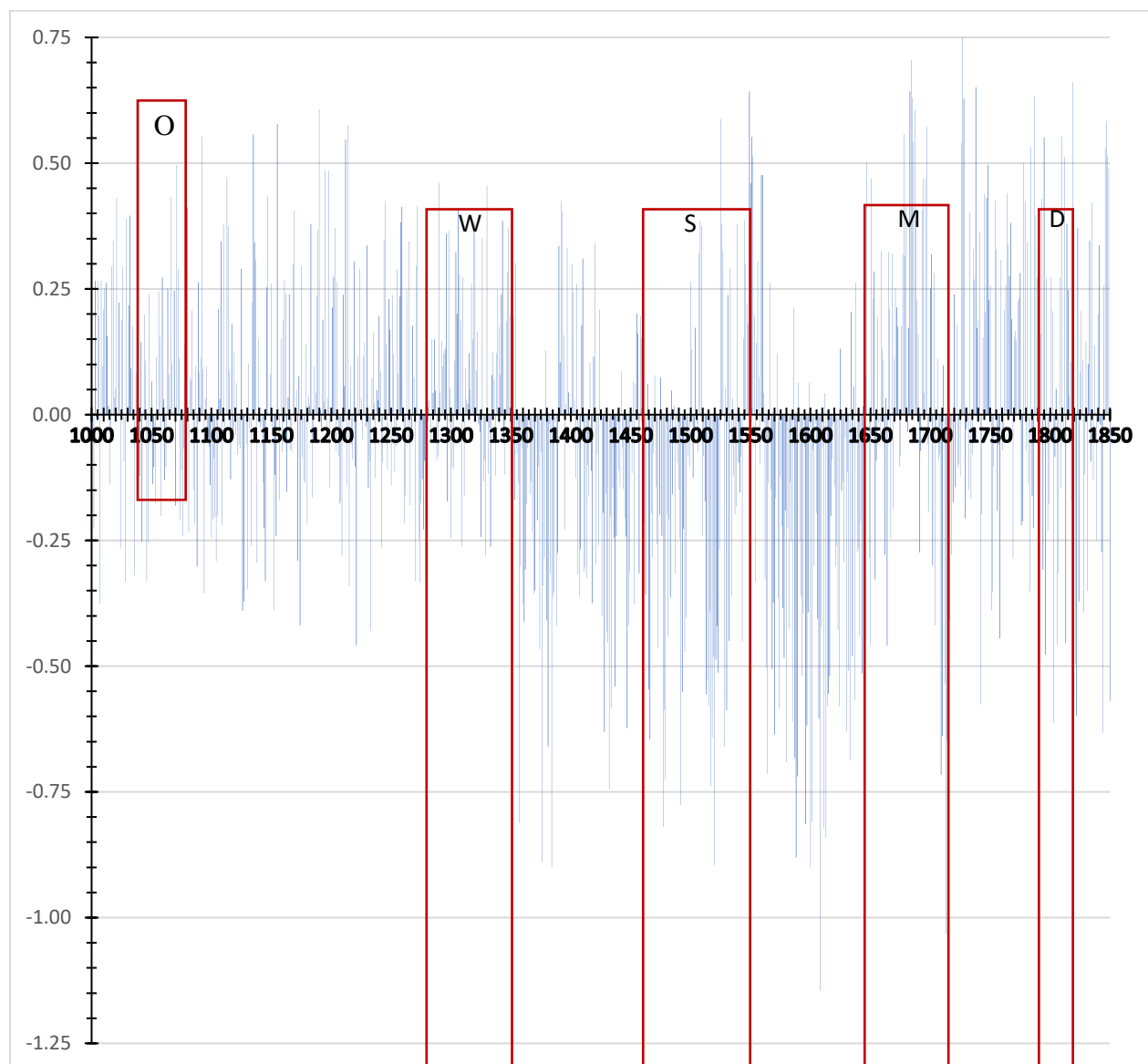


Figure 2.4. Temperature reconstruction with solar minima labeled. The y axis measures temperature departures ($^{\circ}\text{C}$) in Europe (27.5°N to 72.5°N and from 7.5°W to 57.5°E) during April -September or the growing season in much of Europe

Source: Data Adapted from Reconstruction based upon data from Guiot et al., “Growing Season Temperatures in Europe and Climate Forcings Over the Past 1400 Years,” found at *European 1400 Year Spring-Summer Temperature Reconstructions*, <https://www.ncdc.noaa.gov/paleo/study/10426>.

Chapter five covers the agricultural difficulties in much more detail, but qualitative observations from documentary sources in Scotland tend to agree quite well with these reconstructions noting how the winters and springs were exceptionally cold, the summers that were exceptionally wet or dry and often warm, and the autumns that were also relatively cool and wet.⁴¹ These conditions were all potentially detrimental to agriculture and threatened subsistence in the region. However, a combined examination of these records suggests that the more troubling problem was not the poor climate of one or two seasons or years, but the dramatic year-to-year fluctuation between hot, cold, wet, and dry that really hurt Scottish agriculture during this period. In conclusion, it is much more likely that the climatic extremes and fluctuations during the second half of the seventeenth century, often explained in a simplistic manner by decreased solar irradiance during the Maunder Minimum, were actually the result of a complex combination of external and internal dynamics. The Maunder Minimum may have helped keep the climate cool during the second half of the seventeenth century, but it was subordinate to other factors. These examples help to show the difficulties in providing monocausal explanations for climatic changes, like sunspot observations, which are influenced by many external and internal dynamics.⁴²

Greenhouse Gas Forcings

Greenhouse gases have an important influence on the earth's climate. While many are familiar with the role that humans play in the amount of greenhouse gases in the atmosphere heating the earth today, particularly CO₂ (carbon dioxide) and CH₄ (methane), even before the

⁴¹ Lamb also comments upon this in *Climate, History, and the Modern World*, 194.

⁴² Guiot, et al., puts it quite succinctly, "the only possible conclusion is that solar forcing has not always been the major forcing in the past everywhere." See "Growing Season Temperatures in Europe and Climate Forcing Over the Past 1400 Years," 12.

increased usage of fossil fuels humans were changing the levels of these two gasses within the atmosphere. Land use changes were responsible for the greatest variations within the levels of CO₂ and CH₄ prior to industrialization. For instance, plants intake CO₂ as part of photosynthesis to meet their basic needs. They convert CO₂ into energy and give off oxygen. Changing the amount of vegetation covering the earth can significantly alter the levels of CO₂ in the atmosphere.

The same is true of the type of vegetation. Rice cultivation, which utilizes large amounts of water sees organic material decay in the standing water and, as a result, produces more CH₄ than most types of agriculture.⁴³ A change from forested land into rice cultivation can have a significant impact on the amount of CH₄ in the atmosphere. Recently, Koch et al. (2019) studied these changes and their influence of the earth's climate during the conventional Little Ice Age. They posited that European colonization of the Americas and the death of millions of indigenous peoples changed land cover patterns beginning in the sixteenth century. The resulting change from agricultural land to forest, they argued, caused a significant decrease in the amount of atmospheric CO₂ of 5 ppm. They argued that this in turn helped drive global cooling beginning in the sixteenth century by as much as .07w/m² or .13°C.⁴⁴ Other land use changes might also

⁴³ For more on this process see Kritee Kritee, Drishya Nair, Daniel Zavala-Araiza, Jeremy Proville, Joseph Rudek, Tapan K. Adhya, Terrance Loecke, Tashina Esteves, Shalini Balireddygari, Obulapathi Dava, Karthik Ram, Abhilash S. R., Murugan Madasamy, Ramakrishna V. Dokka, Daniel Anandaraj, D. Athiyaman, Malla Reddy, Richie Ahuja, Steven P. Hamburg, "High Nitrous Oxide Fluxes from Rice Idictate the Need to Manage Water for both Long-and Short-term Climate Impacts," *Proceeding for the national Academy of Sciences* 115 (2018): 9720-9725.

⁴⁴ Alexander Koch, Chris Brierley, Mark M. Maslin, and Simon L. Lewis, "Earth System Impacts of the European Arrival and Great Dying in the Americas After 1492," *Quaternary Science Reviews* 207 (2019): 13-36. It is interesting to note that when they described the Little Ice Age, they looked at the northern hemisphere and defined it 1440-1920, though they do acknowledge global cooling in the sixteenth and seventeenth centuries.

have played a role in the reduction of CO₂ and also CH₄. Although rice cultivation in China had been increasing during the early modern period and could have increased CH₄ levels, a declining population and social disruption within the Ming Dynasty in the seventeenth century likely decreased the amount of land under intensive rice cultivation.⁴⁵ Figure 2.5 displays the effects of these changes in the land.

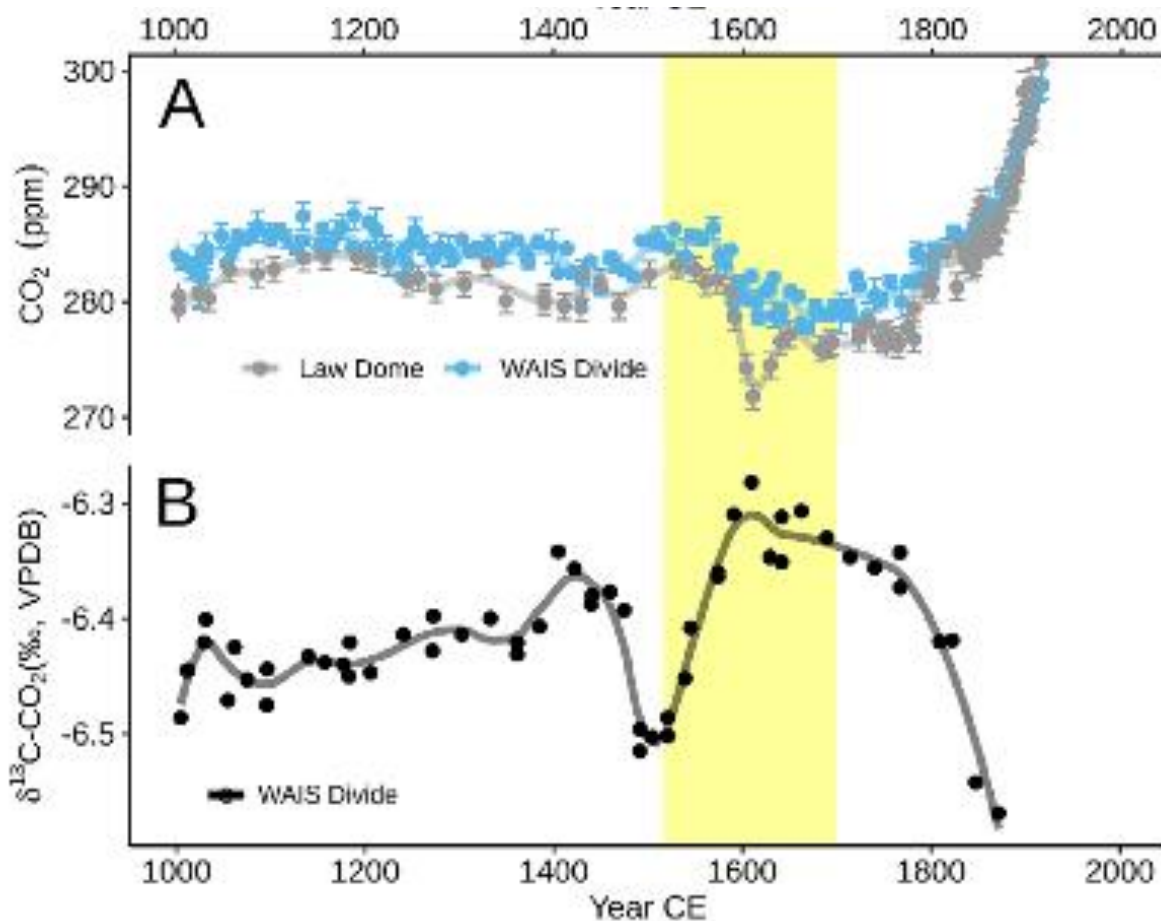


Figure 2.5. Global Atmospheric CO₂ from Koch et al. (2019). A: CO₂ concentrations from two Antarctic Ice Cores. B: Carbon isotopic ratio recorded in CO₂ showing an increased terrestrial uptake over the sixteenth century. Yellow box denotes their demarcation for major indigenous depopulation, 1520-1700.

Source: Koch et al., "Earth System Impacts of Great Dying," (2019).

⁴⁵ For more on rice production in China during this period see Jack Goldstone, "Feeding the People, Starving the State: China's Agricultural Revolution of the 17th/18th Centuries," *Paper for the Global Economic History Network* (2003): 1-43; Ping-Ti, Ho, "Early-Ripening Rice in Chinese History," *The Economic History Review* 9 (1956): 200-18. For more on the crisis of the seventeenth century see Parker, *Global Crisis*, 91-122, 355-90, 480-95

Volcanic Forcing

Volcanism is another vital aspect to consider in reconstructing past climates. After a major eruption, generally five or higher on the Volcanic Explosivity Index (VEI), that is strong enough to send ejecta into the stratosphere, volcanic matter will circle around the earth within a few days at the latitude of the eruption, then spread out zonally north and south over a period of weeks to years.⁴⁶ The exact pattern will vary based upon the strength and direction of high altitude winds. As the volcanic matter transfers into higher atmospheric layers, it gradually turns into a veil of variable thickness that can cover an entire hemisphere, or if the eruption occurs at tropical latitudes, the whole globe within half a year.⁴⁷ The duration of this veil depends upon the height the volcanic matter reaches. The stronger the eruption and the higher it is thrown, the longer the veil lasts, with some of the smaller particles taking as long as seven years to leave the stratosphere.⁴⁸

Where climate is concerned, these particles and the veil that they form can greatly reduce the amount of incoming shortwave solar radiation reaching the earth's surface; however, outgoing long wave radiation passes easily through this volcanic haze. The result of this process is cooler temperatures at the earth's surface. The resulting cooling from a single major eruption typically reaches its peak during the initial year after the eruption and usually ranges from -0.1 to

⁴⁶ For more on the VEI index see Christopher Newhall and Stephen Self, "The Volcanic Explosivity Index (VEI): An Estimate of Explosive Magnitude for Historical Volcanism," *Journal of Geophysical Research* 87 (1982): 1231–1238.

⁴⁷ See Chaochao Gao, Alan Robock, and Caspar Ammann, "Correction to "Volcanic Forcing of Climate Over the Past 1500 Years: An Improved Ice Core-Based Index for Climate Models,"" *Journal of Geophysical Research: Atmospheres* 114 (2009): 7; Lamb, *Climate History and the Modern World*, 297.

⁴⁸ Gao, et al., "Improved Ice Core Volcanic Index," 1; Lamb, *Climate, History, and the Modern World*, 297.

-1.0° C.⁴⁹ With multiple eruptions, the global temperature can drop even further. Prime examples include the 1783-84 eruptions in Iceland and Japan, which cooled the northern hemisphere by an average of -1.3° C with effects lasting for the following four to five years. Because they occurred at high northern latitudes, they had no notable effect on the southern hemisphere.⁵⁰

Reconstructions of past volcanic eruptions using ice cores from both poles provides another useful natural archive for climate historians. Once calibrated and compared for both poles, ice cores house a truly global record of past volcanism and in turn, the climatic effect of aerosol forcing—the blocking of incoming solar radiation by sulfates ejected by volcanos into the upper atmosphere.⁵¹ Figure 2.6, demonstrates how we can directly identify previous volcanic eruptions using spikes of sulfates (SO₄) found in ice cores. Sulfates make up many materials and end up in the atmosphere as a result of a range of human and natural causes, the most important of which are large volcanic eruptions. Before large-scale industrialization, sulfate levels in the atmosphere generally stayed within a consistent range. Ice core samples from Antarctica and Greenland have established a baseline for sulfates in the atmosphere prior to increases from industrial sulfates circa 1900. Large fluctuations outside of this range signify increased amounts of sulfates thrown into the atmosphere by volcanic activity that fell to earth and was stored within ice core layers. Figure 2.6 measures these fluxes within the northern hemisphere. It clearly displays several of these events during the Global Little Ice Age and seventeenth century where the effects from these events lasted for several years.

⁴⁹ P.M. Kelly, P.D. Jones, and Jia Pengqun, “The spatial response of the climate system to explosive volcanic eruptions,” *International Journal of Climatology* 16 (1996): 537; Lamb, *Climate, History, and the Modern World*, 297.

⁵⁰ Lamb, *Climate, History, and the Modern World*, 297; see also Gao, et al., “Improved Ice Core Volcanic Index,” 5-6.

⁵¹ T.J. Crowley and M.B. Unterman, “Technical Details Concerning Development of a 1200 Year Proxy Index for Global Volcanism,” *Earth Syst. Sci. Data* 5 (2013) 187-197.

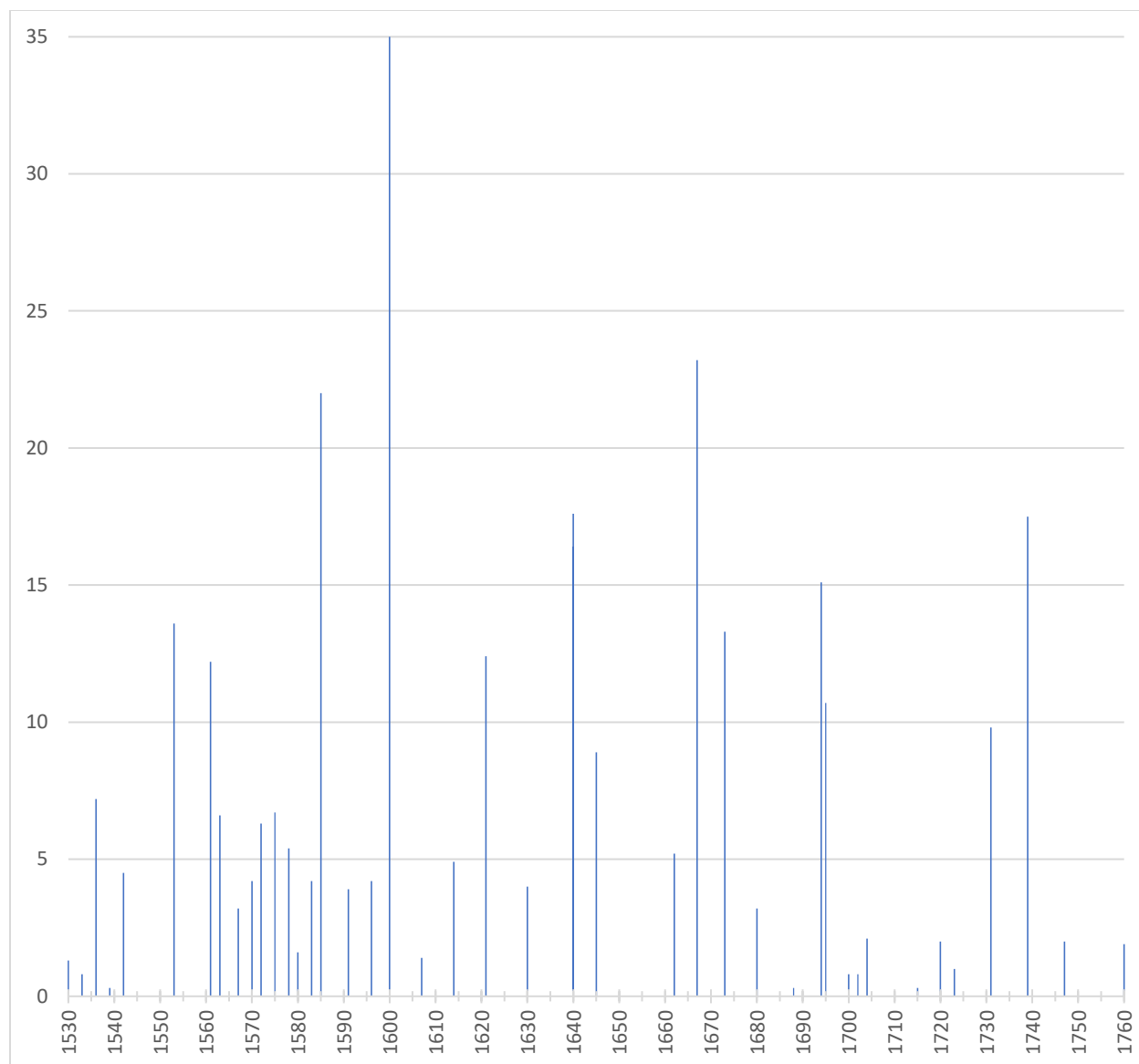


Figure 2.6. Measurement of SO₄ fluxes. Y axis measure fluxes in SO₄ kg/km². Anything over 6 ppb denotes a significant eruption.

Source: Data adapted from T.J. Crowley and M.B. Unterman, “Technical Details Concerning Development of a 1200 Year Proxy Index for Global Volcanism,” *Earth Syst. Sci. Data* 5 (2013) 187-197.

Records of volcanic eruptions are vitally important in reconstructing past climates since a decline in solar irradiance is not, by itself, enough to explain the variations in temperature during the extremes of the Global Little Ice Age. The climatic influence of volcanic eruptions, although relatively short-lived, is two orders of magnitude greater than variation in solar irradiance. Figure 2.7 displays several of the forcings discussed so far in w/m^2 over the past millennium. While some of the longer-term climatic changes in solar forcing and perhaps greenhouse gasses and land use changes show a reduction in energy (w/m^2) during the conventional and Global Little Ice Age, the greatest decadal change comes from volcanic forcing. A growing body of evidence suggests that volcanic forcing was the most important external factor influencing decadal-scale climatic fluctuations during the Global Little Ice (especially in 1600, 1640-41, 1674-5, and 1695-99), as well as during other major cold snaps over the past 1000 years (most notably after the truly massive eruptions in Indonesia and Tonga of 1287, 1450, and 1815).⁵² Some models have indicated that volcanism caused over 40% of decadal temperature variance during the conventional Little Ice Age.⁵³

⁵² Lamb, *Climate, History, and the Modern World*, 297; Crowley, et al., “Causes of Climate Change Over the Past 1000 Years,” 270-77; Drew Shindell, Gavin Schmidt, Ron Miller, and Michael Mann, “Volcanic and Solar Forcing of Climate Change during the Preindustrial Era,” *Journal of Climate* 16 (2003): 4094-4105; J. Servonnat, P. Yiou, M. Khodri, D. Swingedouw and S. Denvil, “Influence of Solar Variability, CO₂ and Orbital Forcing Between 1000 and 1850 AD in the IPSLCM4 Model,” *Climate Past* 6 (2010): 446; Gao, et al., “Improved Ice Core Volcanic Index,” 1-15.

⁵³ Luterbacher, et al., “The Late Maunder Minimum,” 456; T.J. Crowley, “Causes of Climate Change Over the Past 1000 Years,” *Science* 289 (2000): 270-277. Although Sigl et al (2015) do not state how large of a percentage this was, eruptions in their models had the ability to decrease the energy of the sun (w/m^2) by as much as 20 w/m^2 during the conventional Little Ice Age, though most were under 10 w/m^2 . See M. Sigl, M. Winstrup, J.R. McConnell, K.C. Welten, G. Plunkett, et al., “Timing and climate forcing of volcanic eruptions for the past 2,500 years,” *Nature* 523 (2015): 543-49.

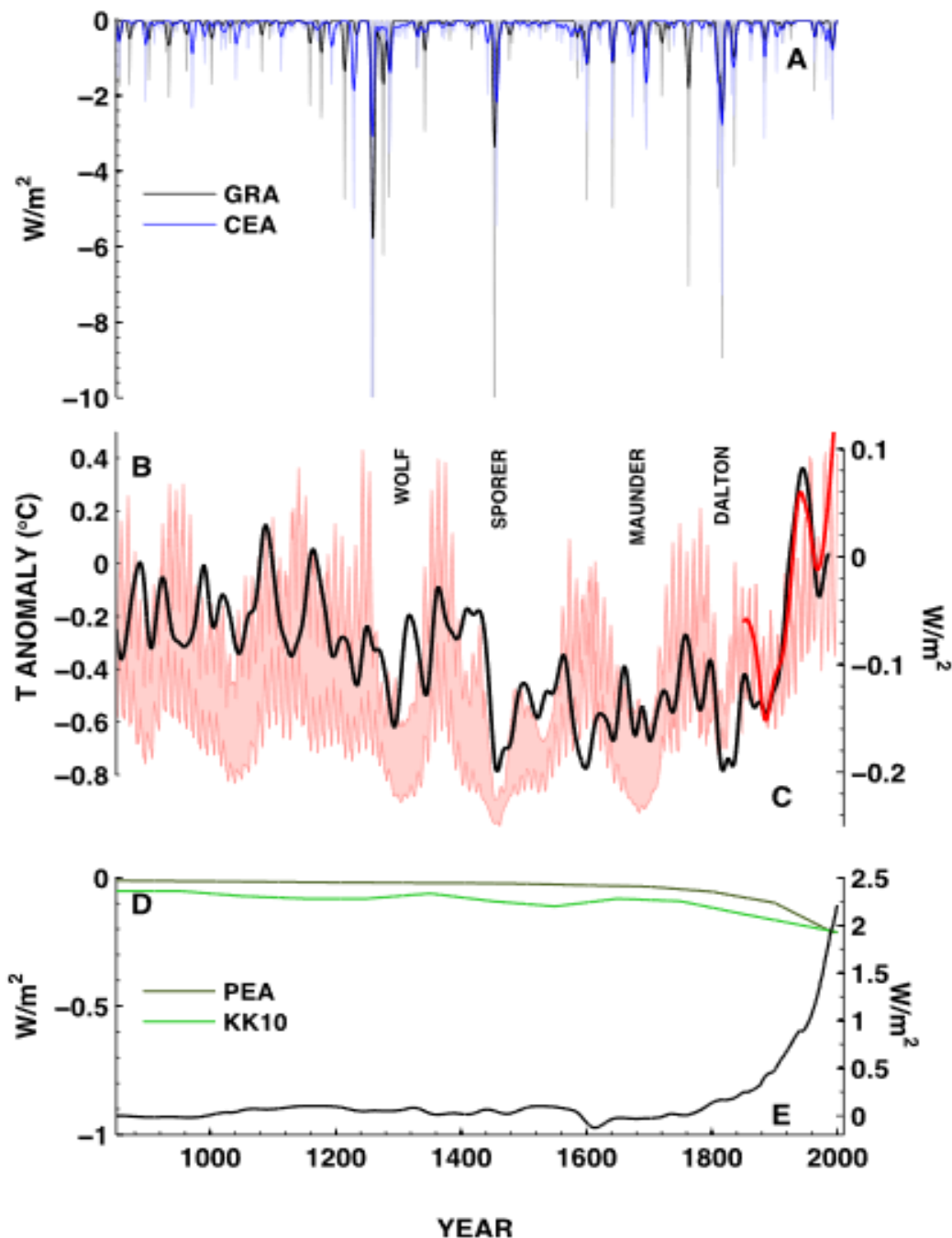


Figure 2.7. Radiative forcing for the Northern Hemisphere over the past millennium. A: shows volcanic forcing with lighter lines representing individual years and darker lines representing a 30-year Gaussian smoothed filter. B: represents summer temperature reconstruction from (Anchukaitis, 2016). C: displays solar forcing in relation 1760 to 2006. The shaded regions represent the range of forcing reconstructions and solar minimum are labeled. D: displays forcing from land use change and greenhouse gas forcing.

Source: Anchukaitis, et al., "Last Millenium Summer Temperatures, Part II," (2016), 14.

One especially strong signal we get from different climate reconstructions during the Global Little Ice Age is in the years around 1600. That year, Huaynaputina erupted in Peru, and as a low-latitude volcano it had a global impact on climate. This eruption happened to occur during a negative phase of the North Atlantic Oscillation (NAO) and a shift in internal climate dynamics in Europe, which saw the slowing down of Sub Polar Gyre. The result was one of the coldest summers of the past 600 years in the northern hemisphere and saw temperatures in Scotland decline as well, though this was not one of the 10 coldest years in Scotland.⁵⁴ Figure 2.8 demonstrates the significant volcanic activity during the seventeenth century by displaying the increase in sulfates from the typical range in the northern hemisphere. Furthermore, notice the increase of volcanic dust during the 1690s. This had a significant effect on the northern European and Scottish climate. If we compare temperature records of the northern hemisphere during the summer months with volcanism as in figure 2.8, we see an immediate correlation between some of the coldest years of the Global Little Ice Age and the largest volcanic eruptions. Some of the coldest periods during these summer months align with the larger eruptions during the Global Little Ice Age, especially around the 1600s, 1640s, 1670s, and 1690s. Although this correlation can certainly help explain much of the cooling during this period (1570-1720), figure 2.8 also displays periods of cooler temperatures that cannot be explained by volcanic eruptions. For this,

⁵⁴ A.T. Grove, "A Brief Consideration of Climate Forcing Factors in View of the Holocene Glacier Record," *Global and Planetary Change* 60 (2008): 142-3; Kevin Anchukaitis, Rob Wilson, Keith R. Briffa, Ulf Büntgen, Edward Cook, Rosanne D'Arrigo, Nicole Davi, Jan Esper, Dave Frank, Björn Gunnarson, Gabi Hegerl, Samuli Helama, Stefan Klesse, Paul J. Krusic, Hans W. Linderholm, Vladimir Myglan, Timothy J. Osborn, Miloš Rydval, Lea Schneider, Andrew Schurer, Greg Wiles, Peng Zhang, Eduardo Zorita, "Last Millennium Northern Hemisphere Summer Temperatures From Tree Rings: Part II: Spatially Resolved Reconstructions," *Quaternary Science Reviews* 163 (2017): 1-22.

we must examine changes in the atmospheric and oceanic circulation, such as the North Atlantic Oscillation (NAO) and the Sub Polar Gyre (SPG).

Oceanic Circulation

The oceans are another vital component of weather and climate, as they play a vital role in the earth's energy balance. Oceans can absorb large amounts of heat coming into the earth from the sun. When this heat enters the oceans, it is constantly being moved by currents and waves, which redistribute this heat energy in different levels of the ocean and at different latitudes. This system moves much slower than the direct heating from the sun and can warm the earth decades after initially receiving this heat energy. This process is called the thermohaline circulation, sometimes referred to as the oceanic conveyor belt, which disperses heat and regulates saline levels through the oceans. This process also sees oceanic upwelling and downwelling, especially at the meeting of oceanic currents. When colder, more dense water meets warmer water it sinks, and warmer water moves to the surface bringing nutrients up with it. Additionally, as rocks on land weather and break down, their ions eventually make their way into the oceans through rivers and streams. Sodium and chloride are two of the more prominent ions in the ocean, and together they form salt, giving the oceans a higher saline content compared to freshwater. The different concentrations of salt affect the diversity of oceanic life. In the Atlantic, this circulation redistributes warmer water with a higher saline content from the Atlantic to the waters near the British Isles and Europe, where the cooler water meets other currents and sinks. One major example is the Gulf Stream and the North Atlantic Current,

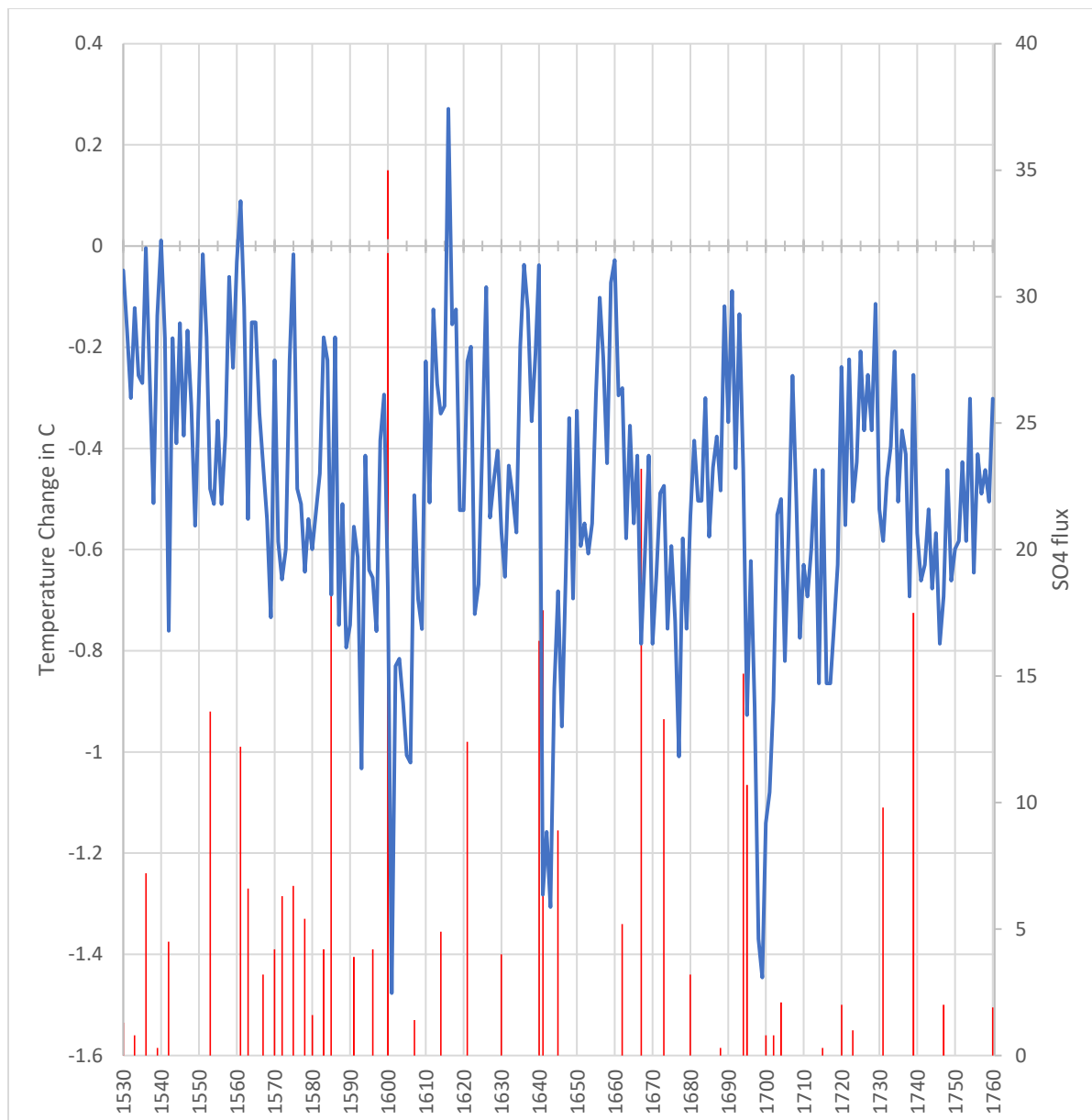


Figure 2.8. Measuring temperature departures and SO₄ fluxes. Left Y axis measures northern hemisphere temperature departure from 1961-90 averages during May-August. Right Y axis measures fluxes in SO₄ kg/km² for northern hemisphere.

Source: Data adapted from Rob Wilson, Kevin Anchukaitis, Keith R. Briffa, Ulf Büntgen, Edward Cook, Rosanne D'Arrigo, Nicole Davi, Jan Esper, Dave Frank, Björn Gunnarson, Gabi Hegerl, Samuli Helama, Stefan Klesse, Paul J. Krusic, Hans W. Linderholm, Vladimir Myglan, Timothy J. Osborn, Miloš Rydval, Lea Schneider, Andrew Schurer, Greg Wiles, Peng Zhang, Eduardo Zorita, "Last Millennium Northern Hemisphere Summer Temperatures From Tree Rings: Part I: The Long Term Context," *Quaternary Science Reviews* 134 (2016): 1-18; Crowley and Unterman, "Technical Details Concerning Development of a 1200-yr Proxy Index for Global Volcanism," (2013); ftp://ftp.ncdc.noaa.gov/pub/data/paleo/climate_forcing/volcanic_aerosols/crowley2013/crowley2013s_o4-nh.txt.

pictured in figure 1.9. Water in the Gulf of Mexico receives more direct sunlight, which makes it warmer and more nutrient rich. Westerlies, or eastward moving winds in the midlatitudes, move this water from the Gulf to the coasts of the British Isles through the North Atlantic Current, where it provides food and resources for marine life there, like herring and cod. The warmer water also keeps temperatures in the British Isles warmer than its latitude might otherwise allow, given the more limited amount of direct sunlight it receives.



Figure 2.9. North Atlantic Current and the Gulf Stream

Source: Image from Fernando medel [CC BY-SA 3.0 (<https://creativecommons.org/licenses/by-sa/3.0/>)]

The thermohaline circulation is in part related to solar irradiance and winds, as the sun's energy creates warmer and cooler water that winds move. The strength and intensity of winds are created by differences in the thermal gradient, a result of the amount of solar energy received in an area. Although reconstructions of the thermohaline circulation in the Atlantic are still in the initial stages, they suggest that there were some variations in the thermohaline circulation cycle during the long time scale of the conventional Little Ice Age.⁵⁵ Moffa-Sanchez, et al (2014) argued that periods with lower solar irradiance usually correlated with colder, less saline, and less nutrient rich water in the North Atlantic Current, which could have had devastating effects for fish populations. However, outside of this long-term variation, there is not enough evidence from the reconstructions to clearly suggest that there was any significant variation in the North Atlantic thermohaline circulation outside of perhaps an initial slowing down at the start of the conventional Little Ice Age because of decreased solar irradiance.⁵⁶ To explain the significant variations in temperature and precipitation, we must look to other sources, particularly smaller circulation patterns in the North Atlantic like the Sub Polar Gyre, which can have a significant influence on the climate of the North Seas World.

⁵⁵ Paola Moffa-Sanchez, A. Born, I.R. Hall, D.J.R. Thornalley, and S. Barker, "Solar Forcing of North Atlantic Surface Temperature and Salinity Over the Past Millennium," *Nature Geoscience* 7 (2014): 275-278; H. R. Langehaug, T. L. Mjell, O. H. Otterå, T. Eldevik, U. S. Ninnemann, and H. F. Kleiven, "On the Reconstruction of Ocean Circulation and Climate Based on the "Gardar Drift,"" *Paleoceanography* 31 (2016): 399-415; Pablo Ortega, Jon Robson, Paola Moffa-Sanchez, David Thornalley, and Didier Swingedouw, "A Last Millennium Perspective on North Atlantic Variability: Exploiting Synergies Between Models and Proxy Data," *Past Global Changes Magazine* 25 (2017): 61-67.

⁵⁶ Moffa-Sanchez, et al., "Solar Forcing of North Atlantic Surface Temperature and Salinity Over the Past Millennium," 275-278; Winds are also important oceanic drivers and are explained at least in some detail in Eduardo Moreno-Chamarro, D Zanchettin, K Lohmann, J Luterbacher, and J.H. Jungclaus, "Winter Amplification of the European Little Ice Age Cooling by the Subpolar Gyre," *Scientific Reports* 7 (2017): 1-6.

Sub Polar Gyre (SPG)

Larger Oceanic circulation may not have varied much during the conventional Little Ice Age; however, models suggest that the internal dynamics within the North Atlantic played a larger role. Circulation within the North Atlantic Ocean is highly dependent upon internal dynamics. One recent argument is that sustained cooler winter temperatures, like those during the Global Little Ice Age in northern Europe and Scotland, were partially the result of internal dynamics caused by a weakening and slowing of the Sub Polar Gyre (SPG).⁵⁷ The SPG is located in the north eastern North Atlantic, south of Iceland and Greenland. Figure 2.10 displays the location of the SPG between the blue arrows. The areas where the red and blue lines run parallel signify where it mixes with subtropical waters in the red line. The SPG helps redistribute waters, i.e. saline concentrations and heat, between the North Atlantic and the Arctic Oceans, especially in the Nordic and Labrador Sea.⁵⁸ This region is typically where currents from the Gulf, including the North Atlantic Current, meet cooler Arctic waters, creating upwelling and downwelling and redistributing less and more dense water that moves in a circular or gyre like shape. Figure 2.11 displays where the waters from the SPG (blue) and the North Atlantic Current (red) mix shaded in green. In these two different years, note how these waters can make their way off the coast of Scotland. The image on the left side in figure 2.11 saw less water from the North Atlantic Current, which meant less nutrient rich water making it to Scotland. A situation that could have dire consequences for marine life if it regularly occurred.

⁵⁷ Eduardo Moreno-Chamarro, Davide Zanchettin, Katja Lohmann, and Johann H. Jungclaus, "An Abrupt Weakening of the Subpolar Gyre As Trigger of Little Ice Age-Type Episodes," *Climate Dynamics* 48 (2017): 727.

⁵⁸ Another good visual for this can be found in Hjálmar Hátún, Anne Britt Sandø, Helge Drange, Bogi Hansen, and HeðinnValdimarsson, "Influence of the Atlantic Subpolar Gyre on the Thermohaline Circulation," *Science, New Series* 309 (2005): 1841-1844.

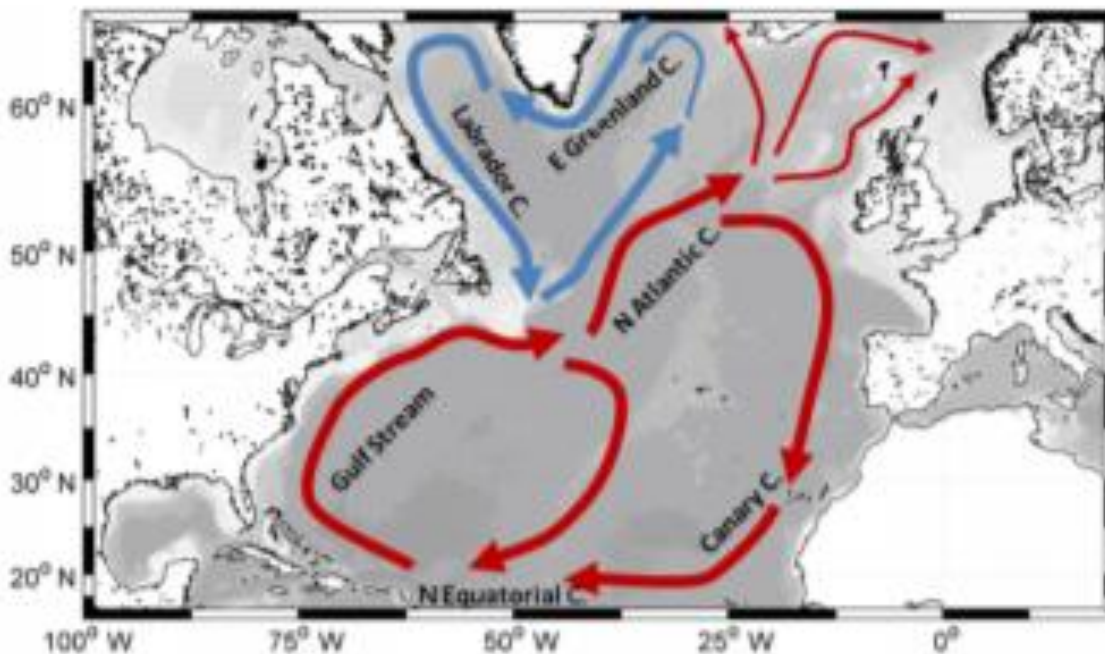


Figure 2.10. Main features of surface circulation in North Atlantic with Subpolar Gyre. Blue and red lines represent waters of SPG and North Atlantic Current and show where they can meet. *Source:* Barbara Brex and Mark Payne, “The Sub-Polar Gyre Index- a community data set for applications in fisheries and environmental research,” *Earth System Science Data* 9 (2017): 259-66.

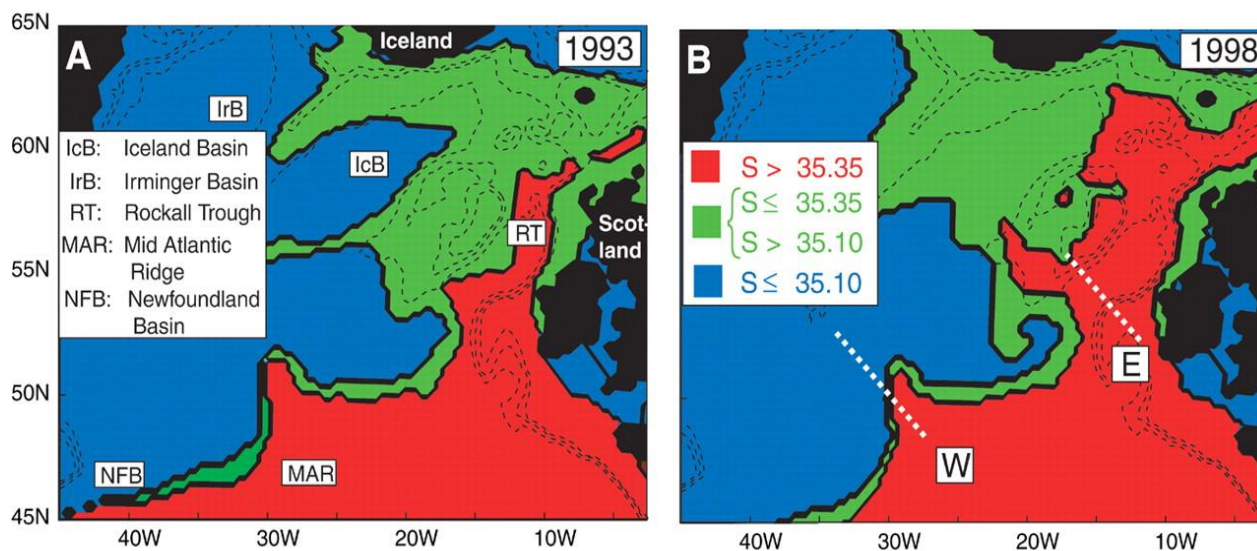


Figure 2.11. Simulated distribution of SPG water (blue), warmer Atlantic water (red), and a mixture (green). A is low salinity year (1993) and B is high salinity year (1998). *Source:* Map from Hátún et al., “Influence of Atlantic SPG,” 1843.

Changes in the shape or intensity of the SPG can create significant changes in the coverage of sea ice in the Arctic and the temperatures of Northern Europe.⁵⁹ Weakening of the SPG can be caused by a rapid increase in the amount of freshwater from seasonally melting ice in Greenland and Canada leaving the Arctic, which in turn changes the concentration of freshwater to salt water in the upper levels of the Labrador Sea. If the SPG slows down, the increase of fresh water can be almost self-sustaining as more ice accumulates in the winter, it later melts in the summer, and redistributes higher levels of fresh water, thus continuing to keep the SPG slower. This higher and anomalous concentration of freshwater correlates with the thickening of Arctic sea ice after volcanic eruptions like Huaynaputina in 1600. Yet models have demonstrated that this can occur without volcanism as well.⁶⁰ Nonetheless, Moreno-Chamarro et al. (2017) have argued that the SPG did in fact slowdown in the North Atlantic during the Global Little Ice Age.⁶¹ The result of this was that the SPG and Nordic seas received less upper level heat and sea surface temperatures dropped by about 0.4 °C after this shift circa 1600. By itself, the SPG was able to induce long-lasting colder surface temperatures in the North Atlantic region. This cooling also resulted in an expansion and thickening of sea ice in the North Atlantic and Arctic Oceans, as well as more sea ice moving further south from those regions. This in turn had an important effect on the climate of the North Atlantic during this period by creating cooler conditions.⁶²

⁵⁹ Moreno-Chamarro, et al., “Subpolar Gyre As Trigger of Little Ice Age-Type Episodes,” 727.

⁶⁰ Moreno-Chamarro, et al., “Subpolar Gyre As Trigger of Little Ice Age-Type Episodes,” 727.

⁶¹ Moreno-Chamarro, et al., “Subpolar Gyre As Trigger of Little Ice Age-Type Episodes,” 730. See their model “Past 1000 R-3,” that shows a rapid weakening of the SPG around 1600, which best matches the increase of sea ice around this period as well as sea surface temperatures in the Arctic.

⁶² See Moreno-Chamarro, et al., “Subpolar Gyre As Trigger of Little Ice Age-Type Episodes,” 727-30; Moreno-Chamarro, D Zanchettin, K Lohmann, J Luterbacher, and JH Jungclaus, “Winter Amplification of the European Little Ice Age Cooling by the Subpolar Gyre,” 1-6.

North Atlantic Oscillation (NAO)

In addition to the Sub Polar Gyre, one of the other influential factors of European climatic variability involving year-to-year and decade-to-decade shifts in atmospheric and oceanic circulation is measured by the North Atlantic Oscillation Index (NAO). The NAO index measures relative difference between the atmospheric pressure within the persistent low over Iceland and a persistent high over the Azores, sometimes Lisbon or Gibraltar. This index shifts in a quasi-cyclic pattern between a negative and a positive phase. The intensity of each phase varies yearly, and it can stay in one phase for a couple of years to decades as seen in figure 2.12.⁶³

During a positive phase of the NAO (figure 2.13 top) the Azores high becomes even stronger, the Icelandic low also deepens, and westerly winds dominate over northwestern Europe and the North Sea. As a result, the jet stream keeps cold northern air along Greenland, and keeps high pressure regions with relatively dry and cold air in those areas of the far northern Atlantic. In Scotland and parts of Northern Europe like Scandinavia, this means that prevailing winds tend to come from the southwest, more moisture is drawn in, and there is a rise in winter temperatures.⁶⁴

⁶³ See Hans Linderholm, Chris Holland, and Alexander Walther, “A Multicentury Perspective on the Summer North Atlantic Oscillation (NAO) and Drought in the Eastern Atlantic Region,” *Journal of Quaternary Science* 24 (2009): 415-417.

⁶⁴ A. Dawson, L. Elliott, S. Noone, K. Hickey, T. Holt, P. Wadhams, and I. Foster, “Historical Storminess and Climate ‘See-saws’ in the North Atlantic Region,” *Marine Geology* 210 (2004): 247–48.

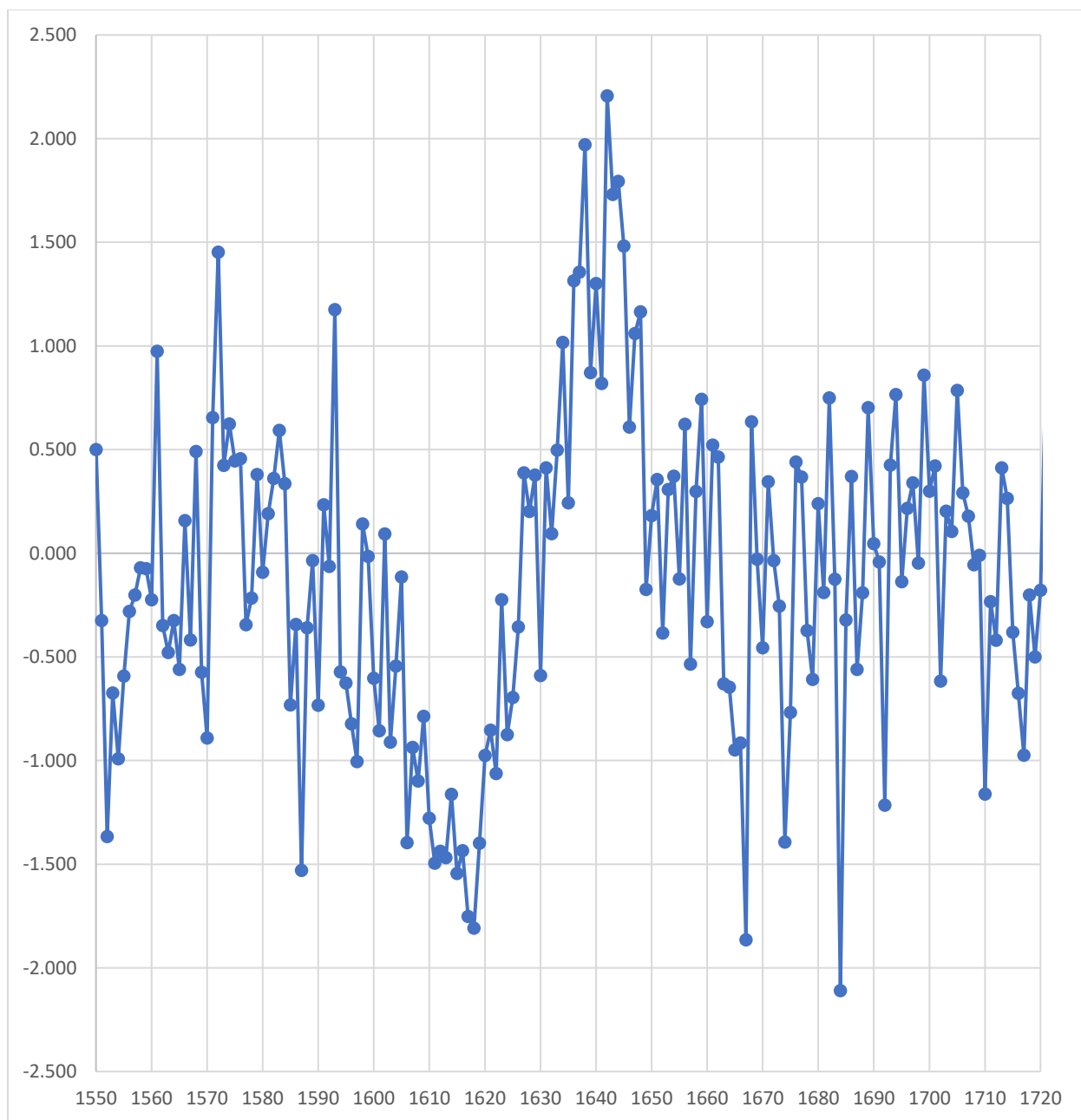


Figure 2.12. Annual Reconstruction of NAO. The Y axis displays the NAO as positive or negative. Note the fluctuation around 1600 that would have brought cooler temperatures to Northern Europe and enhanced volcanic forcing. In addition, note the relative see-saw during the second half of the seventeenth century and the positioning of a neutral and positive phase during the 1690s.

Source: Data adapted from ensemble mean of model constrained NAO reconstruction, P. Ortega, F. Lehner, D. Swingedouw, V. Masson-Delmotte, C. C. Raible, M. Casado, and P. Yiou, “A Model-Tested North Atlantic Oscillation Reconstruction for the Past Millennium,” *Nature* 523 (2015): 71-74.

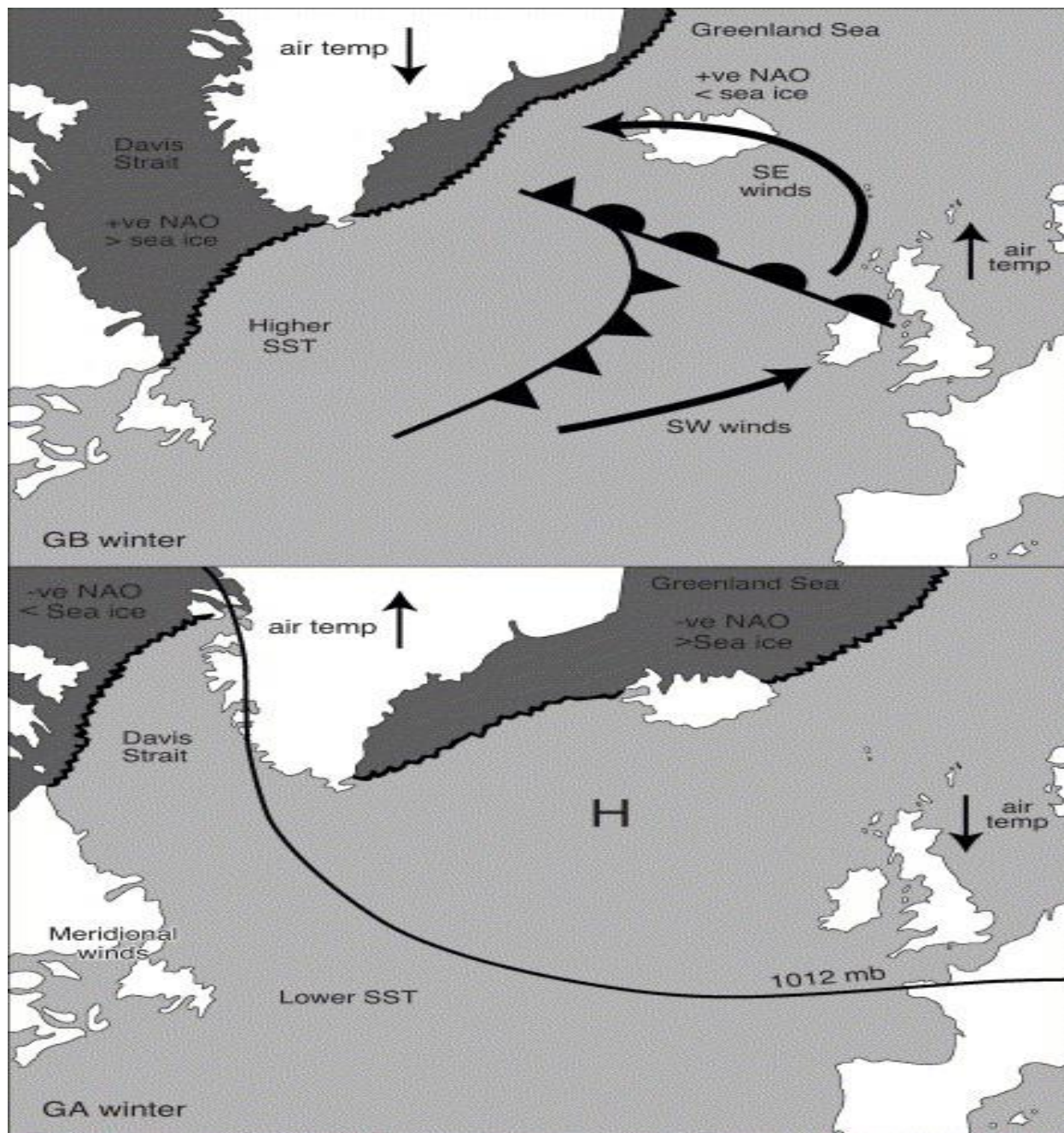


Fig. 2.13. Illustration of North Atlantic climate 'see-saw.' Top: Key elements of Positive NAO in winter showing lower air temperatures over Greenland, increased air temperatures across British Isles and North Atlantic cyclogenesis leading to a positive NAO index as well as a decrease in sea ice extent. Bottom: Key elements of Negative NAO in winter showing higher air temperatures over Greenland, lowered air temperatures across Scotland, the occurrence of high pressure across the North Atlantic with decreased sea surface temperature and increased sea ice extent.

Source: A. Dawson, L. Elliott, S. Noone, K. Hickey, T. Holt, P. Wadhams, and I. Foster, "Historical Storminess and Climate 'See-saws' in the North Atlantic Region," *Marine Geology* 210 (2004): 247–48.

This creates wetter and warmer winters in Scotland and much of the North Seas World and colder and drier winters over Greenland. In addition, the track of cyclonic storms over the North Atlantic moves further north, resulting in more severe and frequent winter storms over much of northern Europe, including Scotland. Although the overall climatic effect of a positive phase of the NAO in summer is not nearly as significant as in winter, it tends to bring about calmer, clearer summer conditions with reduced rainfall in much of northwestern Europe.⁶⁶

During a negative phase of the North Atlantic Oscillation (figure 2.13 bottom) both the Azores and Icelandic pressure systems are weaker and the difference between them is smaller, which allows high pressure, anticyclonic regions to persist and establish a blocking pattern across the eastern North Atlantic. When this occurs, air along the eastern side of the ridge tends to flow south from the Arctic and advects, or moves, colder, drier polar air across Europe and into Scotland.⁶⁷ So, during the NAO's negative phase, winters in Scotland and the North Seas World are colder, drier, and more severe, while temperatures tend to be above average to the west over Greenland. The same is true to a much lesser extent during the summer, however, the NAO has the greatest effect on the Scottish climate during the winter months. The negative phase of the NAO also sees the storm track move over southern Europe, making storms less frequent in Scotland.⁶⁸ By measuring the positioning of the Icelandic Low and the Azores High

⁶⁶ Ian Brown, "Influence of Seasonal Weather and Climate Variability on Crop Yields in Scotland," *International Journal of Biometeorology* 57 (2013): 606.

⁶⁷ Dawson, et al., "Historical Storminess and Climate 'See-saws' in the North Atlantic Region," 247–48.

⁶⁸ Oliver Timm, Eberhard Ruprecht, and Sabine Kleppek, "Scale-Dependent Reconstruction of the NAO Index," *Journal of Climate* 17 (2004): 2162; Dan Charman and Dawn Hendon, "Long-Term Changes in Soil Water Tables Over the Past 4500 Years: Relationships with Climate and North Atlantic Atmospheric Circulation and Sea Surface Temperature," *Climatic Change* 47 (2000): 45–59.

and their intensity, this can reflect the strength of the westerlies across the Atlantic and into Europe, which has an important effect on the Scottish climate.⁶⁹

Figure 2.12 displays a reconstruction of the NAO from 1550-1720. It is important to note how the NAO responded differently to two larger volcanic events in 1600 and 1639-40. Both years around 1600 and 1639-40 saw a decrease in temperatures. In 1600 the NAO dropped significantly, whereas in 1639-40, it rose dramatically. This helps show that some of the internal dynamics effecting Scotland and the North Seas World acted independently of larger global conditions. Furthermore, the climatic extremes experienced by Scotland during the past millennium were strongly conditioned by internal variabilities of the atmospheric and oceanic systems of the North Atlantic and Western Eurasia. These internal dynamics cannot be ignored or simplistically defined by any definition of Little Ice Ages. These dynamics could often dramatically enhance ongoing global conditions, like volcanic forcing, and their seasonal expression becomes important when discussing agricultural yields or fish catches. The next section explores how these conditions influenced the Scottish climate during the Global Little Ice Age.

Piecing it All Together: The Global Little Ice Age in Scotland and the North Atlantic.

Given the information from the previous section, one thing should be clear: monocausal explanations of climate change and variability during the Global Little Ice Age—even those that consider solar, greenhouse gas, and volcanic forcing together—are highly problematic, particularly when making generalizations at a regional level. These changes were the result of the interplay of several factors and the historical conjuncture of disparate physical causes within

⁶⁹ J. Luterbacher, et al., “Extending North Atlantic Oscillation Reconstructions Back to 1500,” *Atmospheric Science Letters* 2 (2002): 114-124.

the earth's climate system. As such, the history of climate events shares much in common with the history of human events. With this in mind, we can begin to piece together the regional manifestation of climate events associated with the Global Little Ice Age circa 1570-1720 as they affected Scotland, the British Isles, and the North Seas region.

By the middle of the sixteenth century, a stark change occurred in the climate of Scotland and Northwestern Europe. For much of the next two centuries, an extreme cold phase encompassed this area, equal to any since the Younger Dryas, at the end of the Pleistocene.⁷⁰ Figure 2.14 displays this significant summer cooling for western Europe beginning in the sixteenth century. As figure 2.14 demonstrates, the 1600s, 1640s, 1670s, and 1690s stand out as having a significant period of cooler temperatures, especially when compared to late twentieth-century averages, though the 1740s, which saw increased volcanic activity and had the cooler temperatures as well.

The same holds true for much of Scotland during this period. Regional reconstructions of the Scottish climate for the past 800 years using tree rings found that there were prominent cold periods stretching from the sixteenth century until the early part of the nineteenth century.⁷¹ Figure 2.15 displays part of this reconstruction and highlights the seventeenth century. Three of the five coldest decades of the reconstruction occurred in the seventeenth century (1631-40, 1661-70, 1691-1700) and supported evidence of the Global Little Ice Age in Scotland.⁷² It also identified the 1690s as the coldest decade of the past 750 years. Table 1.3 also displays Scottish temperature departures over the past 800 years, with 60 per cent of the coldest decades occurring

⁷⁰ Lamb, *Climate, History, and the Modern World*, 193.

⁷¹ Other prominent cold periods occurred in the thirteenth and fifteenth centuries.

⁷² Miloš Rydval, Neil J. Loader, Björn E. Gunnarson, Daniel L. Druckenbrod, Hans W. Linderholm, Steven G. Moreton, Cheryl V. Wood, Rob Wilson, "Reconstructing 800 Years of Summer Temperatures in Scotland from Tree Rings," *Climate Dynamics* 49 (2017): 10.

during the seventeenth century, 40 per cent of the coldest years during the seventeenth century, and the Global Little Ice Age also saw the coldest century in Scotland from 1612-1711.

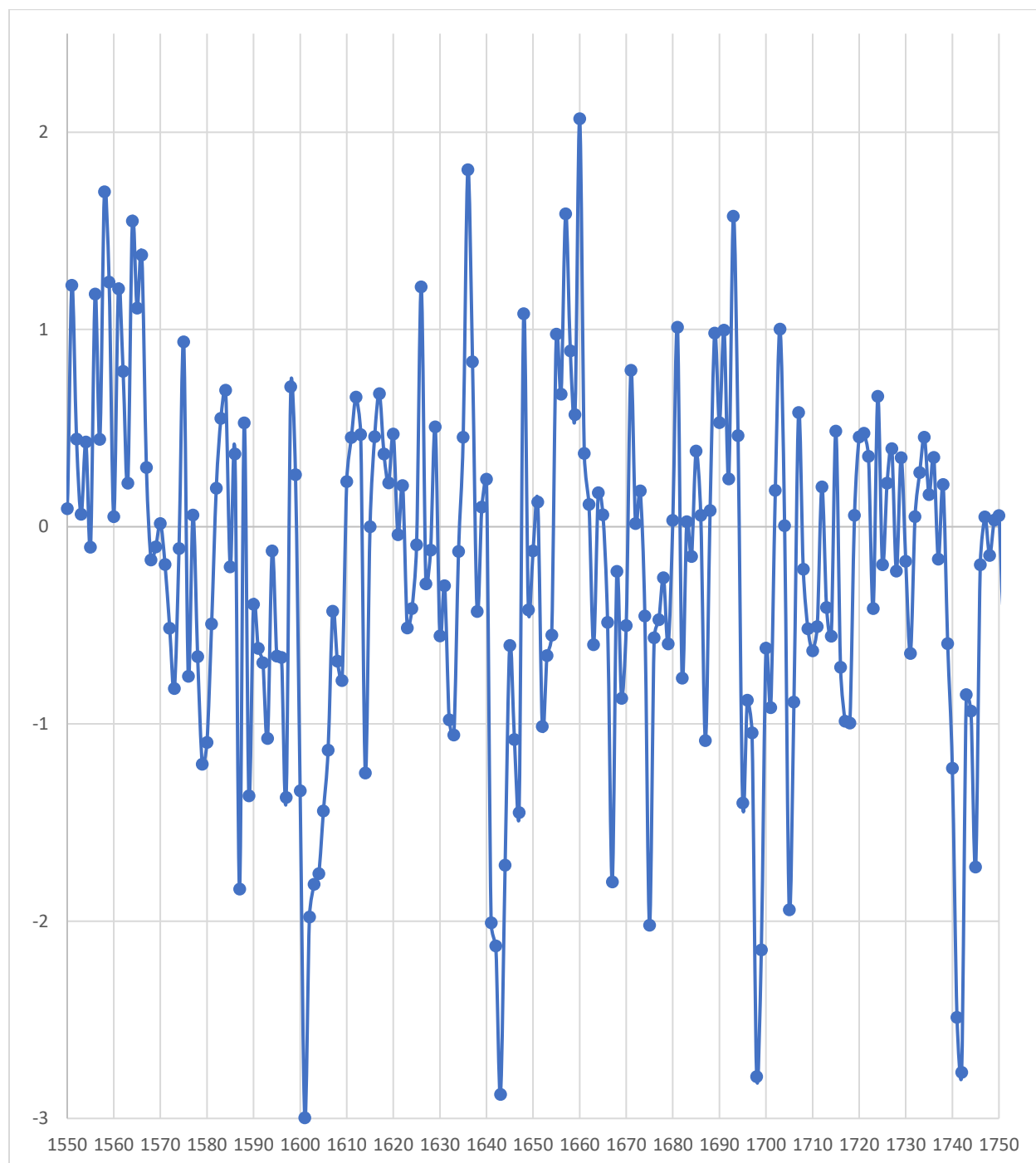


Figure 2.14 Western Europe (-10°W to 80°E) Summer (May-August) Temperature departure from 1961-1990. Averages in Degree Celsius from NTREND2015.

Source: Data adapted from Wilson, et al., “Last Millennium Northern Hemisphere Summer Temperatures from Tree Rings,” 1-18, <https://www.ncdc.noaa.gov/paleo/study/19743>.

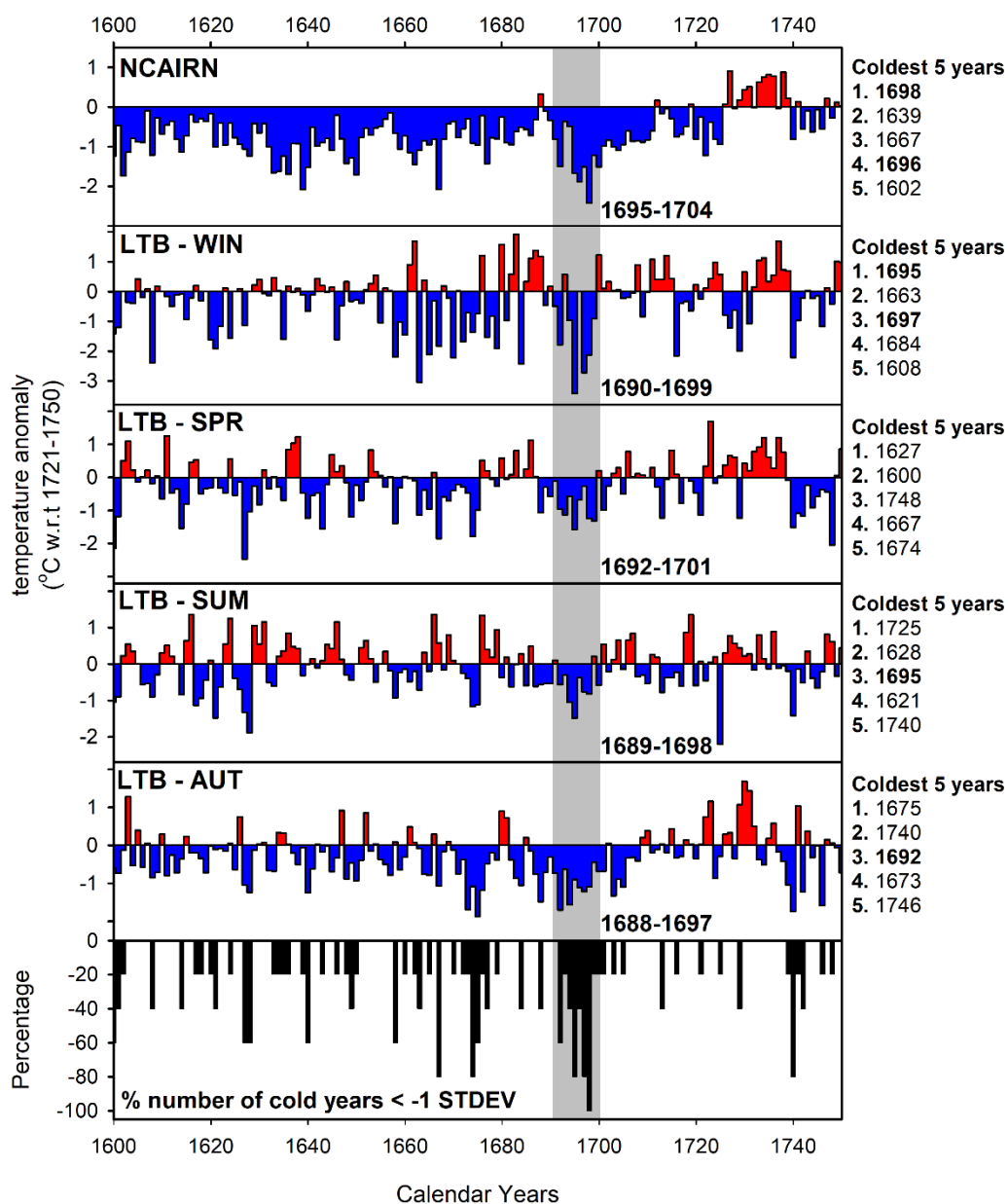


Figure 2.15. Comparison (1600-1750) between NCAIRN (Rydval et al. 2017) and the four temperature seasons relevant to Scotland from Luterbacher et al. (2004). The temperature series are expressed as anomalies with respect to 1721-1750. The coldest decade over the 1600-1750 period is detailed on each panel while the top 5 coldest years are listed on the right. Cold years within the 1690s are bolded. The lower histogram denotes the % number of seasonal records (NCAIRN + Luterbacher et al. 2004) that express cold seasonal values 1 standard deviation below the 1600-1750 mean. The 1690-1700 period is highlighted in grey.

Source: Rosanne D'Arrigo, Patrick Klinger, Timothy Newfield, Milos Rydval, and Rob Wilson, "The Cold Pulse of the 1690s and the Consequences of Scotland's Failure to Cope," *Journal of Volcanology and Geothermal Research* (Forthcoming).

In addition to the extreme cold, the 1690s also saw increased precipitation, especially during autumn, and more easterly and northeasterly winds suggestive of a negative phase of the NAO. Chapter five provides abundant documentary sources from Scotland describing those conditions during the 1690s, but one example includes sir John Campbell who in 1698 wrote how “the wather [in Scotland] is as cold and stormie here as it is with yow, nothing daily but snow and frost. I pray God help it and relieve the poor people.”⁷⁵ Figure 2.16 below displays the hydroclimate for Scotland during much of the Global Little Ice Age. While the Old World Drought Atlas (OWDA) suggests that several years during the seventeenth century saw increased annual precipitation, the 1690s were not one of them. However, Pauling’s 2016 study (PAU), which is shown below the OWDA in figure 2.16, examined seasonal variations in Scottish precipitation and found that during the 1690s, autumn saw significantly increased precipitation. Drier springs and summers, in addition to wetter autumns would all have been detrimental to agriculture. Kirkbride (2014) also argued that the colder and wetter conditions of the Global Little Ice Age, and particularly of the 1690s, may have created a new late-Holocene glacier that left moraine ridges in Scotland’s Cairngorm Mountains.⁷⁶ In fact, if a glacier were to form in Scotland, the conditions of the late seventeenth century were the most ‘glacier friendly’ not only of the Global Little Ice Age, but over the past 2,800 years.⁷⁷

⁷⁵ NRS, GD170/629, Letter from Sir John Campbell of Glenorchy, later 1st earl of Breadalbane, to Barcaldine, his chamberlain, 25 Apr. 1698.

⁷⁶ Martin Kirkbride, Jez Everest, Doug Benn, Delia Gheorghiu, and Alastair Dawson, “Late-Holocene and Younger Dryas Glaciers in the Northern Cairngorm Mountains, Scotland,” *The Holocene* 24 (2014): 141-148.

⁷⁷ While the debate over whether a glacier formed during this period is ongoing, the conditions that could have possibly produced a glacier are not in question. For more on this debate see: <https://cairngormwanderer.wordpress.com/2014/01/24/a-glacier-in-the-cairngorms/> and the related articles/posts; Kirkbride, “Late-Holocene and Younger Dryas Glaciers in Scotland,” 147 (Peat-based proxies demonstrate higher water tables and increased humidity beginning around

Table 1.3 Temperature Departures for Scotland Past 800 Years

Coldest Years	Temp Departure °C	Coldest Decades	Temp Departure °C	Coldest Century	Temp Departure °C
1232	-2.61	1691-1700	-1.3	1612-1711	-1.01
1782	-2.52	1631-1640	-1.27		
1698	-2.38	1221-1230	-1.11		
1799	-2.32	1231-1240	-1.03		
1227	-2.3	1661-1670	-0.96		
1639	-2.04				
1667	-2.03				
1441	-1.86				
1202	-1.85				
1696	-1.84				

Source: Data from M. Rydval, N. Loader, B. Gunnarson, D. Druckenbrod, H. Linderholm, S. Moreton, C. Wood, and R. Wilson, “Reconstructing 800 Years of Summer Temperatures in Scotland from Tree Rings,” *Climate Dynamics* 49 (2017).

1640); See also Lamb, *Climate, History, and the Modern World* and J. Kington, *Climate and Weather* (London: Harper Collins, 2010).

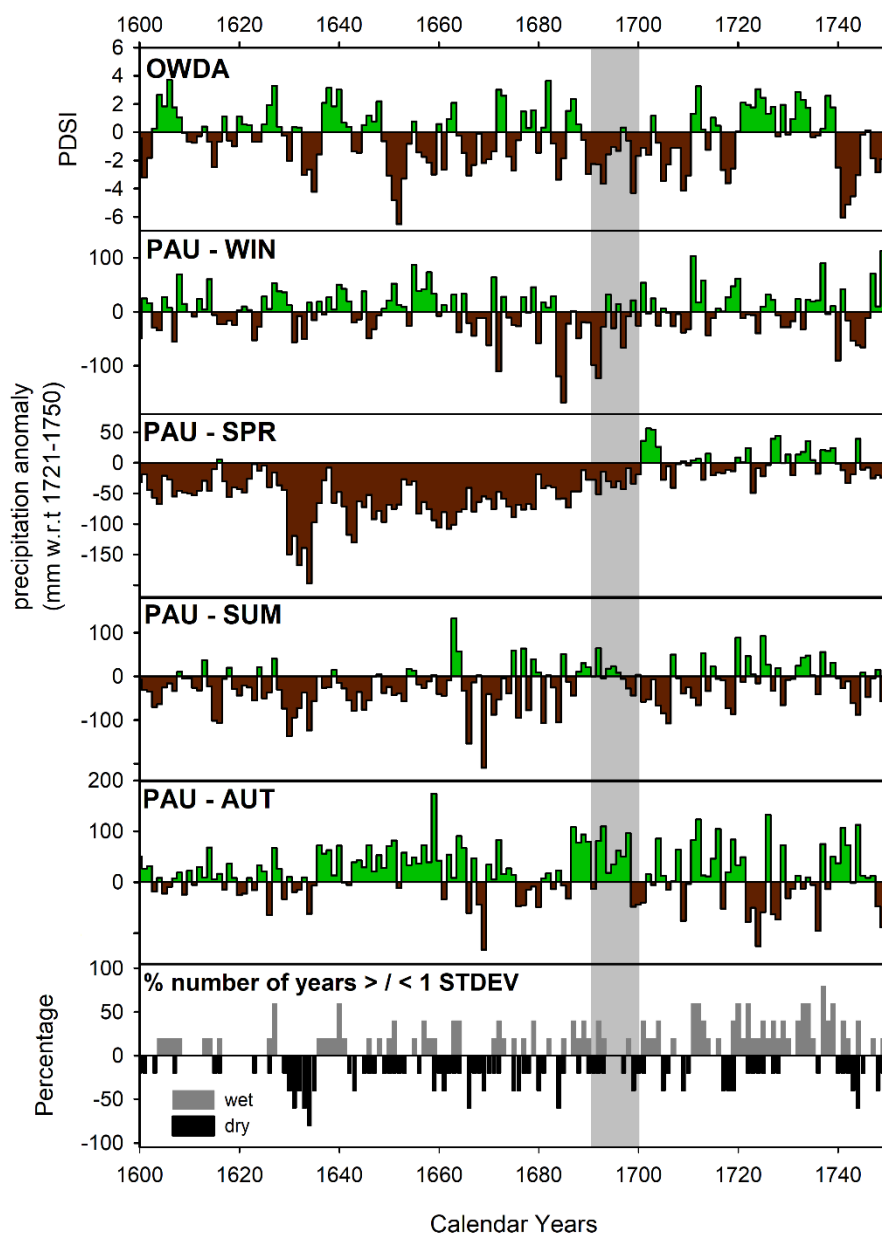


Figure 2.16. Hydroclimate gridded proxies for the Scottish region. From upper to lower: June-August scPDSI tree-ring reconstruction (Cook et al. 2015); Season precipitation reconstructions of Winter through to Autumn derived from multi-proxy sources (Pauling et al. 2006). The lower histograms denote the % number of records (Cook et al. 2015 + Luterbacher et al. 2004) that express both dry and wet seasonal values $>$ or $<$ 1 standard deviation from the 1600-1750 mean. The 1690-1700 period is highlighted in grey.

Source: Rosanne D'Arrigo, Patrick Klinger, Timothy Newfield, Milos Rydval, and Rob Wilson, "The Cold Pulse of the 1690s and the Consequences of Scotland's Failure to Cope," *Journal of Volcanology and Geothermal Research* (Forthcoming).

Explanations for why this ‘glacier friendly’ period in Scotland occurred during the Global Little Ice Age have been based largely upon the three factors; trends in the NAO index, volcanic forcing, and changes in the internal dynamics of the North Atlantic related to the Sub Polar Gyre (SPG). Figure 2.12 shows the annual variation and cycles of the NAO index during the seventeenth century. In the mid-1640s the NAO index shifted away from a stronger positive phase and into a slightly negative and more neutral phase. Figure 2.12 shows that for the next 50 years the annual variations kept the trend line for the NAO close to a neutral position, which meant that Scotland should have had more typical temperatures and precipitation, or at least ones that saw less variability, both of which would have been advantageous for agricultural surplus.⁷⁸ In fact, during much of this period, Scotland saw increased agriculture exports, as chapters one and five detail.

For much of the 1690s and 1700s, the NAO remained relatively stable and trended towards a neutral or slightly positive phase. The years of a positive phase should have meant a shifted storm track over Scotland producing increased precipitation and also slightly warmer temperatures. While figure 2.16 and Scottish documentary accounts, discussed in chapter 5, support these reconstructions suggestive of increased autumn precipitation, many of the same documentary sources also comment upon the exceptional cold of the period. The most probable cause of the severe cold and the larger fluctuations of the NAO, especially during the 1690s, was the effect of volcanic forcing.

⁷⁸ There were several years of significant spikes during the mid-1660s, mid-1670s, and mid-1680s. Ortega, et al (2015) argued that the most extreme spikes were likely the result of volcanism, which tends to result in a shift of the NAO index within two years of an eruption. In all three instances there were eruptions in the northern hemisphere. See P. Ortega, et al., “A Model-Tested North Atlantic Oscillation Reconstruction for the Past Millennium,” 71-74.

Volcanic forcing most likely created the extremely cold years in Scotland during the seventeenth century, and especially the 1690s. It can have a significant effect on temperatures and precipitation as Rob Wilson's study (2017) on the Scottish climate noted that the effects of volcanic eruptions were felt within the first year of the eruption.⁷⁹ To help put this into perspective, figure 2.17 demonstrates some of the volcanic activity during this period of the Global Little Ice Age utilizing ice core samples in Antarctica and Greenland.⁸⁰ In the figure, notice the significant activity of volcanic dust during the 1690s. The eruption found around 1695 is of particular importance as 1695 was the beginning of several of the worst harvest years of the 1690s in Scotland. Phipps, et al. identified an eruption circa 1693, with a forcing effect similar to Pinatubo (1991) that dropped global temperatures by 1-2 °C and could have been responsible for this significant harvest failure.⁸¹ In addition, during the 1690s volcanic eruptions have been identified in each of the years between 1693-1697.⁸² With the continuous eruptions during the 1690s, volcanic forcing played an important role on the Scottish climate, magnifying its effect to drop temperatures to lower levels, in conjunction with the effect enhanced precipitation of the

⁷⁹ Rydval, et al., "Reconstructing 800 Years of Summer Temperatures in Scotland from Tree Rings," 2-10.

⁸⁰ E. Gautier, J. Savarino, J. Erbland, A. Lanciki, and P. Possenti, "Variability of Sulfate Signal in Ice-Core Records Based on Five Replicate Cores," *Climate of the Past* 12 (2016): 103-113; Data from E. Gautier, J. Savarino, J. Erbland, A. Lanciki, and P. Possenti, "Dome C 2500 Year VOLSOL Ice Core Sulfate Concentration Data," <https://www.ncdc.noaa.gov/paleo/study/19763>.

⁸¹ Steven J. Phipps, Helen V. McGregor, Joëlle Gergis, Ailie J.E. Gallant, Raphael Neukom, Samantha Stevenson, Duncan Ackerley, Josephine R. Brown, Matt J. Fischer, and Tas D. van Ommen, "Paleoclimate Data-Model Comparison and the Role of Climate Forcings over the Past 1500 Years," *Journal of Climate* 26 (2013): 6915-6936.

⁸² See Gao, et al., "Improved Ice Core Volcanic Index." <http://climate.envsci.rutgers.edu/IVI2/#Version2>; See also Lamb, "Weather and Climate Patterns of the Little Ice Age"; C. T. Plummer, M. A. J. Curran, T D. van Ommen, S.O. Rasmussen, A. D. Moy, T. R. Vance, H. B. Clausen, B. M. Vinther, and P.A. Mayewski, "An Independently Dated 2000-yr Volcanic Record from Law Dome, East Antarctica, Including a New Perspective on the Dating of the 1450s CE Eruption of Kuwae, Vanuatu," *Climate Past* 8 (2012): 1929–1940.

positive NAO index. More simply, this could help explain some of the seasonal expressions of warm summers and cooler autumns and winters.

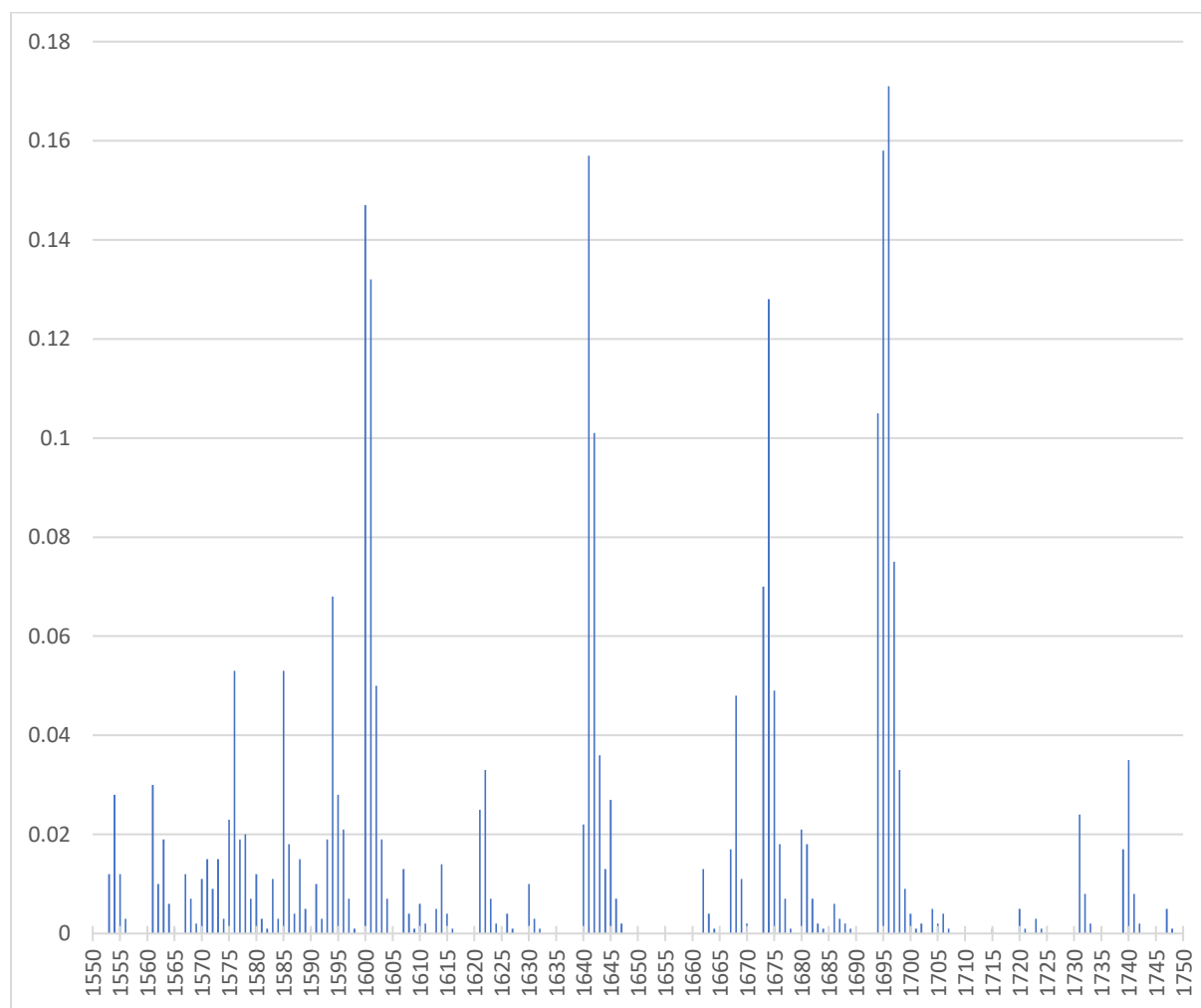


Figure 2.17. Stratospheric aerosol optical depth (AOD) which measures the increased particles in the atmosphere from global volcanic eruptions.

Source: Data adapted from Crowley and Unterman, “Technical Details Concerning Development of Proxy for Global Volcanism,” 187-197.

In addition to the larger eruptions identified in the northern hemisphere ice cores, Icelandic volcanic eruptions are especially important to consider when reconstructing the Scottish climate. Yet, Icelandic volcanic eruptions can be problematic in the Greenland ice cores because of their proximity, which can create a bias in the Greenland core records, and, therefore, it is necessary to remove some of this bias when calibrating the records on a larger hemispheric scale. In these cases, like in figure 2.17 above, the Icelandic eruptions are minimized in the record, unless it was clear that they had a larger effect or could be found in other cores, such as those from western Canada.⁸³ Take for example the 1783 Laki eruption, which was only measured at only 15% of what it actually showed for Greenland ice cores. While this is appropriate on a hemispheric scale, the proximity of Scotland to Iceland, means that some of the volcanic eruptions not reflected in the reconstruction above, could have had an effect in Scotland, even though they were not present in other cores, and, therefore, not listed in this figure. This is also in part because Icelandic eruptions frequently only go into the troposphere, which can still block shortwave radiation and could possibly affect the Scottish climate, even if they do not have a large effect on most of the northern hemisphere because the sulfates never make it to the stratosphere.⁸⁴ Thordarson and Larsen (2007) argued that the seventeenth century saw a significant increase in the number of recorded Icelandic volcanic eruptions (22) over the average during the previous 500 years (6), however, this was less than the eighteenth century that saw 31.⁸⁵

⁸³ Crowley and Unterman, "Technical Details Concerning Development of Proxy for Global Volcanism," 189.

⁸⁴ T.A. Mather, D.M. Pyle, and C. Oppenheimer, "Tropospheric Volcanic Aerosol," *Geophysical Monograph Series* 139 (2003): 189.

⁸⁵ T. Thordarson, and G. Larsen, "Volcanism in Iceland in Historical Time: Volcano Types, Eruption Styles and Eruptive History," *Journal of Geodynamics* 43 (2007): 118-152; None of the seventeenth century eruptions were near the scale of Laki 1783. The authors also cautioned that

The slowing down of the Subpolar Gyre (SPG) also likely played a significant factor in the climate of the North Atlantic during this period and the models of Moreno-Chamarro, et al., help explain some of the interdecadal and even seasonal variability during the Global Little Ice Age. They posited that the SPG weakened between the Medieval Climate anomaly and the beginning of the Global Little Ice Age, and that this weakening intensified during the seventeenth century. Subpolar latitudes in Northern Europe depend on the SPG to deliver heat or warmer water to these regions. Their models demonstrated a reduction of heat from circa 1600 onwards and they proposed that this weakening of the SPG was created by an increase in freshwater at the upper levels of the Ocean. This was caused by surface cooling during winter that allowed sea ice expansion from the Arctic Ocean and Nordic seas into the Labrador Sea. This cooling occurring later in winter in the Labrador Sea created stronger vertical mixing down several hundred meters, which created a core of dense water near the center of the SPG, increasing the gradient and slowing the gyre's circulation. The increased seasonal melting of the ice prevented mixing of more and less dense waters and weakened the SPG.⁸⁶ This continued to create a stronger gradient between densities in the gyre's core and edges and weakened the SPG.⁸⁷

For the climate of northwestern Europe and Scotland during the Global Little Ice Age and particularly the seventeenth century, the weakened SPG created conditions which allowed surface northeasterly winds to prevail bringing polar air masses from the Arctic to Scotland and the North Seas World. Easterlies over western Europe also prevented humid and warm air

much of this increase in numbers beginning in the seventeenth century was as likely to have been the result of improved written records of volcanic activity than it was a sign of increased volcanism.

⁸⁶ Moreno-Chamarro, et al, "Subpolar Gyre As Trigger of Little Ice Age-Type Episodes," 730.

⁸⁷ Moreno-Chamarro, et al, "Subpolar Gyre As Trigger of Little Ice Age-Type Episodes," 727.

masses moving west over the Atlantic from reaching the continent. This increased the number and length of winter blocking events, which is associated with extreme weather like cold temperatures, especially during winter.⁸⁸ These synoptic blocking patterns can reduce surface temperatures below freezing for months.

The resulting cooler temperatures, especially during winter, had a significant effect on much of the North Atlantic, including Scotland. Cooler winter temperatures allowed Arctic pack ice to spread down to Iceland and as far as the Faeroes during the late seventeenth century. As amazing as it may sound, there even were multiple reports out of Scotland, including from Shetland and Aberdeen, of an Inuit hunter, presumably from Greenland, traveling there by kayak.⁸⁹ Lamb argued that for ice to spread that far, temperatures had to have been approximately 5°C colder than the twentieth-century average in those regions. Figure 2.18 displays the change between 1550-1750 from reconstructed sea surface temperature in degrees centigrade for the entire North Seas World. Although it does not suggest that there was 5°C cooling near Iceland as Lamb posited, this figure does demonstrate a significant temperature drop during the Global Little Ice Age, that was particularly deep and sustained from circa 1640 to 1720. This cooling caused several disruptions in the North Atlantic and North Seas fishing industries. For instance, in Faroe, the cod industry began declining in 1615, and progressively worsened until there were no cod caught between 1675-1704. Cod fishing also failed in Iceland between 1685-1704 during the two coldest decades of the Global Little Ice Age, although this

⁸⁸ Moreno-Chamarro, et al, "Winter Amplification of the European Little Ice Age Cooling by the Subpolar Gyre," 3-4.

⁸⁹ Lamb, *Climate, History and the Modern World*, 201; This account originated from John Brand, *A Brief Description of Orkney, Zetland, Pightland Firth, and Caithness, in A General Collection of the Best and Most Interesting Voyages and Travels in All Parts of the World* (London: 1809 [1703]), 758. For more on Brand, see chapter three.

was partly the result of increased sea ice and severe oceanic weather, which kept Iceland's less advanced fishing craft close to shore; boats that made it over 20 kilometers off shore still caught some cod during this period of cod scarcity.⁹⁰ Chapters three and six explore these effects in more detail through the lens of the herring industry in Scotland.

In addition, the weakening of the SPG created warming along the North Atlantic Current (50-55N), and when paired with the cooling in the British Isles, this created a greater thermal gradient near the British Isles and can help explain the increase in storm frequency and intensity in the British Isles that could lead to flooding and wind erosion.⁹¹ Cyclonic wind storms, which were typically uncommon, at least of high intensity, became far more frequent for this part of the North Sea World during this period. Chapters three, five, and seven explore this topic in more detail, but storminess in Shetland, Orkney, and in much of Scotland increased. This was evident through an increase in the amount of sand found in soil samples, yet another 'archive' for historians, dated from the seventeenth century, which corroborates several accounts of villages relocating or being destroyed because of blown sand coming from the shores and the shallow, sandy grassland soils that predominate in drier parts of the Shetland Isles that are not covered by peat bogs.⁹² A Decree of Absolution of arrears of rent between the Earl of Morton against Robert Sinclair of Quendale (Shetland) from July 25, 1718, highlights one of these scenarios.

⁹⁰ A.E.J. Ogilvie and I. Jónsdóttir, "Sea ice, climate, and Icelandic Fisheries in the Eighteenth and Nineteenth Centuries," *Arctic* 53 (2000): 387-391; Bo Poulsen, "The Variability of Fisheries and Fish Populations Prior to Industrialized Fishing: An Appraisal of the Historical Evidence," *Journal of Marine Systems* 79 (2010): 328; Lamb, *Climate, History, and the Modern World*, 55, 197.

⁹¹ Moreno-Chamarro, et al, "Winter Amplification of the European Little Ice Age Cooling by the Subpolar Gyre," 3-4; Moreno-Chamarro, et al, "Subpolar Gyre As Trigger of Little Ice Age-Type Episodes," 727.

⁹² A. A. Sommerville, J. D. Hansom, D. C. Sanderson, and R. A. Housley, "Optically Stimulated Luminescence Dating of Large Storm Events in Northern Scotland," *Quaternary Science Reviews* 22 (2003): 1085-1092.

This decret stated that between 1676 to 1706 “the said lands were blasted and wholly overblown with sand yielding neither grass nor corns and has been in that condition these many years by gone,” and that “the damage sustained by this overblowing was very considerable.”⁹³

Incidents such as this demonstrate how a shifting storm track and increased storminess could have major effects on communities throughout Scotland, and other locales touching the North Sea.⁹⁴ In addition, there is evidence that not only did more coastal and dune erosion take place during the conventional Little Ice Age, but that it increased greatly in its severity during the extremes of the Global Little Ice Age.⁹⁵ Documentary sources identify this trend through the large number of coastal disasters from sea flooding and blown sand.⁹⁶ Some examples of this included the formation of the Culbin sands in northeastern Scotland in 1694, “the overwhelming of a 4,000 year old settlement site in the Hebrides with sand in 1697,” and the Great Storm of 1703.⁹⁷

⁹³ NRS, GD150/1704, Papers in Court of Session process by Robert Sinclair of Quendale against Robert earl of Morton and officers of state, July 1718. Concerning superior duties payable from the lands of Quendale, wasted by sand between 1670? and early 1700s.

⁹⁴ Lamb, *Climate, History, and the Modern World*, 192.

⁹⁵ F. Oldfield, R. W. Battarbee, J. F. Boyle, N. G. Cameron, B. Davis, R. P. Evershed, A. D. McGovern, V. Jones, R. Thompson, and R. Walker (nee Wake), “Terrestrial and aquatic ecosystem responses to late Holocene climate change recorded in the sediments of Lochan Uaine, Cairngorms, Scotland,” *Quaternary Science Reviews* 29 (2010): 1054; See also E. W. Tisdall, R. D. McCulloch, D. C. W. Sanderson, I. A. Simpson, and N. L. Woodward, “Living with sand: A record of landscape change and storminess during the Bronze and Iron Ages Orkney, Scotland,” *Quaternary International* 308–309 (2013): 205–215.

⁹⁶ Lamb, *Climate, History, and the Modern World*, 198–99.

⁹⁷ Lisa Orme, Liam Reinhardt, Richard Jones, Dan Charman, Andrew Barkwith, and Michael Ellis, “Aeolian sediment reconstructions from the Scottish Outer Hebrides: Late Holocene storminess and the role of the North Atlantic Oscillation,” *Quaternary Science Reviews* 132 (2016): 15–25; Lamb, *Climate, History, and the Modern World*, 199.

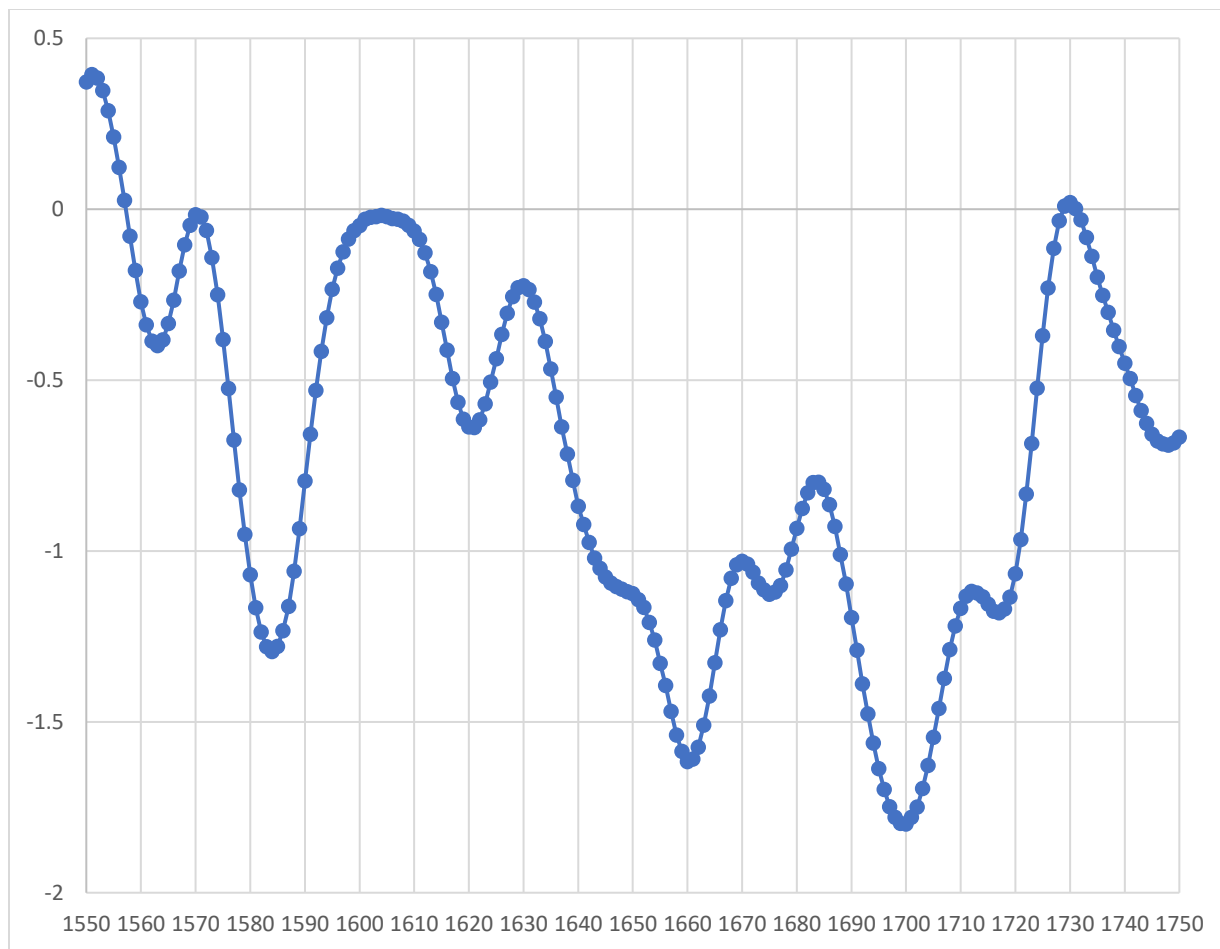


Figure 2.18. Departure from the millennial average °C of sea surface temperature reconstruction from the North Seas World during the Global Little Ice Age. Smoothed with a 25 gaussian year filter.

Source: L.K. Cunningham, W.E.N. Austin, K.L. Knudsen, J. Eiriksson, J.D. Scourse, A.D. Wanamaker Jr., P.G. Butler, A. Cage, T. Richter, K. Husum, M. Hald, C. Andersson, A. Zorita, H.W. Linderholm, B.E. Gunnarson, M.A. Sicre, H.P. Sejrup, H. Jiang, and R.J.S. Wilson, “Reconstructions of Surface Ocean Conditions from the Northeast Atlantic and Nordic Seas During the Last Millennium,” *Holocene* 23 (2013): 921-35; 1000 Year Composite Sea Surface Temperature Record from the North Atlantic Ocean, <https://www.ncdc.noaa.gov/paleo/study/14193>.

The internal dynamics of the North Atlantic and the Scottish climate were able to enhance many of the larger conditions of the Global Little Ice Age. It is important to remember these dynamics and their seasonal expression as we move into the rest of the work. After all, a warm and dry summer followed by a cooler and wet winter could be more devastating to an agricultural society than a year that saw only cooler temperatures. The result of all of these conditions was that the second part of the seventeenth century, and especially the 1690s, saw climatic changes and extremes that proved difficult for North Sea fishing (chapter 3), trade (chapter 6), and especially for agriculture (chapter 5), and these conditions generated several instances of truly extreme storminess (chapter 7). In general, the climatic and environmental changes discussed in this chapter made life challenging for many in Scotland and the North Seas World, especially by the end of the seventeenth century. While the Scottish climate was hardly the only factor or motivator influencing the decisions to vote for or against the Anglo-Scottish Union in 1707, it certainly influenced the ecological and economic parameters affecting Scottish livelihoods, and in some instances it had a demonstrable, direct influence on some key discussions regarding union.

CHAPTER 3

Scotland and the Early Modern North Sea Herring Fishery, A Study of Northern Scotland's Boom and Bust

Alexander Brand, steward and justiciar of Orkney and Shetland of crown and bishopric rents, petitioned the crown in 1696 “to represent to them the lamentable and deplorable condition and estate weare under by reasone of the decay of trade with the Hollanders who brought in most money to the cuntry and came frequente in great numbers every year, being the greatest meane of our subsistence, which is now utterly decayed.”¹ Brand also depicted the changing climate in Shetland, which can be directly attributed to volcanically induced cooling near the end of the Global Little Ice Age, with “ther being more as ane third part of the arrible land within the said cuntry now ley for want of seed, and that quich is laboured by the coldness and unseasonableness of the summer and great rains is likly not to rypin nor come to perfectione.”²

Based upon secondary works and primary sources of the North Seas fish production and Scottish accounts of the herring industry during the seventeenth century, after over a half century of booming production dating from the 1590s, a noticeable and lasting decline in the overall herring catch from the North Sea began in the late 1650s. This decline in North Sea and Scottish catch records has not gone unnoticed. Historians and contemporary records depict an overall long-term decline in the North Sea herring fishery during the last sixty years of the Global Little Ice Age, ending around 1720, including a marked decline in the Scottish herring fishing industry

¹ S[hotland] A[rchives], E41/24/36, “Instructions from the heritors of the cuntrey of Zetland to Allexander Brand stewart & justiciar of Orkney and Zetland for representing ther conditions to the Lords of His Majesties Councill and Tresaurie, subscrivit the 22 of Augues 1696.”

² SA, E41/24/36, “Instructions from the heritors of the cuntrey of Zetland.”

lasting from the mid-1640s until the Scottish fishery began to boom again just before the turn of the eighteenth century. Perhaps the best known among these is T.C. Smout's *Scottish Trade on the Eve of Union* (1963), which argued that a general decline in Scottish trade was due, in part, to the renewed conflicts of the Anglo-Dutch wars. Smout also blamed the lasting decline of the Scottish herring industry and herring trade to the civil wars of the 1640s.³ More recently, Bo Poulsen's *Dutch Herring* (2008) has shown that there was a decline in herring catch, as well as a significant increase in the length of fish voyages during the same period, which suggests that the root cause of this herring decline was environmental, rather than political and the Anglo-Dutch and Franco-Dutch wars.⁴

Herring fishing in the North Seas World went through several boom and bust cycles. The seventeenth century was no exception. This chapter examines these various cycles and explores the causes of the decline in the Scottish herring industry in the mid-seventeenth century, arguing climatic and environmental change also drove the herring decline. While the growth and collapse of this industry were both prevalent during this period, this chapter emphasizes the bust and the role that this had for Scottish herring fishing communities, especially in Shetland and Orkney, which greatly relied upon herring and its associated trade. Fishing was a vital part of the Scottish economy and trade where it was frequently one of the top five Scottish exports. By the 1690s, after the herring trade had declined near Shetland and Orkney, climatic fluctuations and French privateers accentuated the economic decay that the herring trade started, leaving the two island communities struggling to survive. Through an interdisciplinary approach utilizing archival

³ See T.C. Smout, *Scottish Trade on the Eve of Union, 1660-1707* (Edinburgh: Oliver & Boyd, 1963), 219-223, 239-244; See also Bo Poulsen, *Dutch Herring: An Environmental History c.1600-1860* (Amsterdam: Aksant Academic Publishers, 2008), 142-44, 225-227; Tariffs were another important factor, but these only became relevant toward the end of the century.

⁴ Smout, *Scottish Trade*, provides an overview of the socio-cultural factors involved.

sources of fishing data and proxy sources, this chapter explores where the herring went and why, and, through two case studies, it demonstrates how a boom and bust cycle of the herring industry affected various social groups, including farmers, fishermen, laborers, and merchants from fishing communities in Scotland, to set the stage for understanding how herring influenced the coalescence of political groups in support of a union. Additionally, it demonstrates the effects that climatic and environmental changes had on the North Seas and the Scottish North Sea herring industry during the seventeenth century and places this contextually within longer term changes of the Global Little Ice Age.

This chapter also utilizes the idea of a North Seas World to help demonstrate the importance of outside factors into the events in Scotland. While chapter two demonstrated how general patterns of climatic change and variability influenced Scotland and the North Atlantic, this chapter, while utilizing the North Seas World model, explores the salience of oceanic changes and its importance to social, cultural, economic, and political factors into the events of Scotland. As Brand's account suggested, Shetland and Orkney were highly dependent upon trade and interaction with the Dutch and the rest of the North Seas World. By utilizing the model of a North Seas World, this chapter argues that the interconnection between coastal communities within the North Sea and the Baltic Sea were vital and it will show how it was possible for Shetland and Orkney to have a closer relationship with Amsterdam at times than it did with Edinburgh.

To help demonstrate those points, the first part of this chapter develops the concept of the North Seas World as it specifically related to the herring fishery and other marine industries and explains the significance of the North Sea, Baltic, and herring to Scotland to demonstrate the importance of a Scottish North Seas herring industry based upon more than just Scottish fishing.

This requires an exploration into the major trading partners for much of the seventeenth century including the Dutch and the Hanseatic League and their importance to the Scottish herring fishing industry. The next section explores the herring themselves and how their behavior, biology, and changing distribution influenced human actions and livelihoods. Here paleoclimatic and archival evidence is employed to show how cooler air and sea temperatures and climatic aberrations affected regional manifestations of the North Sea fishing industry, fishing town economies, and subsistence agriculture of many fishermen in Scotland. The work then examines specific fishing communities in Shetland and Orkney that provide vivid examples of the Scottish North Sea herring industry, its collapse in those communities Scotland, and its interconnection with the rest of Scotland and Scottish society. In these areas, Scottish fishing was seasonal. Scottish vessels usually went out during the summer months after most fishermen had planted their subsistence crops to which they returned in time for harvest.⁵ When the waters in the near Shetland and Orkney began to cool in the 1650s, herring left, and it not only required more time to locate fish, but also resulted in less time for Scottish fishermen to spend on their own farms.⁶ This chapter ends by demonstrating the importance that this herring decline had upon eventual voting patterns for union in these peripheral communities.

Scotland in an Early Modern North Seas Fishing World

Fishing has been a part of Scottish society for almost as long as there have been communities in Scotland. The archaeological record notes fishing activities in Scotland for at

⁵ Goodlad argued that it was in the fifteenth century that Shetlanders became fishermen first and farmers second (Orkney remained the opposite). C. A. Goodlad, *Shetland Fishing Saga* (Lerwick: Shetland Times, 1971), 67.

⁶ See H. H. Lamb, *Climate, History, and the Modern World* (London: Routledge, 1995); Poulsen, *Dutch Herring*.

least the past 9,000 years.⁷ Some of the earliest documentary sources covering Scottish fishing include monastic records from the early medieval period. It was during this period that medieval Scottish towns began to see more specialization of fishing and the creation of fishing markets. As the Scottish economy further grew, fishing became an essential part of Scotland's export trade and specialization in fishing became more common by the sixteenth century. Ayr and Glasgow, for instance, saw fishing markets established and larger fishing towns like Berwick, Perth, Montrose, Banff, Inverness, and Aberdeen started to specialize in both river and coastal fishing.⁸ A similar rise could be seen throughout much of the North Seas World when even specific fish, like herring, became part of a more expansive export trade network.

By the early modern period, there were three major groups of fish caught by Scots. There was herring, which this chapter explores in greater detail, there were the other "white fish" like cod, ling, and haddock, and then there was salmon fishing. A local industry in crustaceans and oysters had developed as well, with hundreds of thousands of oysters exported to northern England during the Restoration period from the Firth of Forth.⁹ There was also a large whaling industry within the North Seas World. While Scottish natural philosopher Robert Sibbald provided a vivid account of whales found near Scottish coasts, many of these details likely came from whales that had washed ashore naturally, as Scots were not large players within this industry until the mid-eighteenth century.¹⁰ For many of their neighbors, however, whaling was a vital part of the North Seas World.

⁷ James Coull, *The Sea Fisheries of Scotland a Historical Geography* (Edinburgh: John Donald Publishers Ltd, 1996), 1, 34-5.

⁸ Coull, *Sea Fisheries of Scotland*, 34-5.

⁹ Christopher Smout and Mari Stewart, *The Firth of Forth: An Environmental History* (Edinburgh: Birlinn Limited, 2012), 52-5.

¹⁰ NLS, Sibbald, *Account of Fishes on the Coast of Scotland*, 7-15, see especially part 1.

Scottish fishermen typically caught so-called white fish—cod, ling, and haddock—outside of the major herring season of May-August. Cod and haddock like shallower, cooler water found near Scotland and ling prefer deeper water, often at depths of several hundred meters.¹¹ Cod was the next most vital economic fish export in the North Sea and for much of the North Atlantic. Extensive cod industries existed around Iceland and off the coasts of Newfoundland. They are generally ground feeding fish that also eat and follow herring schools. They travel larger areas than most fish caught by Scottish fishermen, in part because they can adapt to different water temperatures. In Scotland, they were generally caught in the first five months of the year, and although they can be caught throughout the Atlantic, one larger Scottish fishing ground was off the Moray coast.¹² Ling was another common fish found off the Scottish coast and was particularly predominant near Shetland.¹³ Haddock too were found off the coasts of Scotland and typically frequent waters in the northern North Sea where they feed on smaller invertebrates.¹⁴ The major market for these fish was local as it would be caught and consumed within a local market ready for immediate consumption, like Edinburgh.¹⁵ Robert Sibbald published an account of Scottish fishes near the end of the seventeenth century, positing that “white fish” like ling and cod that were caught off the Scottish coasts typically stayed within Scotland and often served as added nutrients in times of dearth.¹⁶ While these other fishing industries had some success as an export, it was generally less than 10 per cent of herring or

¹¹ Malcolm Gray, *The Fishing Industries of Scotland, 1790-1914* (Oxford: Oxford University Press, 1978), 1-2.

¹² Malcolm Gray, *The Fishing Industries of Scotland, 1790-1914* (Oxford: Oxford University Press, 1978), 2-3.

¹³ Coull, *Sea Fisheries of Scotland*, 16.

¹⁴ Coull, *Sea Fisheries of Scotland*, 15.

¹⁵ Coull, *Sea Fisheries of Scotland*, 3, 80-4.

¹⁶ NLS, Sibbald, *Account of Fishes on the Coast of Scotland*, 95.

salmon exports. In Scotland, salmon was the next most popular fish next to herring for much of the early modern period. Salmon was caught in the rivers and streams of Scotland and did not require larger ocean-going vessels, which likely helped with its popularity. However, the crown owned many of the rivers and streams that contained salmon, making it more difficult to trade large quantities.

While several types of fish could be found off the Scottish coast, the most important and most abundant fish was herring.¹⁷ After the initial fishing revolution which saw an increase in the total number of all fish caught beginning in the sixteenth century, the largest variations within herring catches during the early modern period derived from environmental and climatic change.¹⁸ Herring are known for being rather fickle. In fact, “more than other fish species, herring had a reputation of unpredictable change.”¹⁹ Although herring chose where to spawn and when, they did so based upon favorable conditions that are influenced by their food source, zooplankton, and favorable water temperatures.²⁰ A study from the North Atlantic during the mid-part of the twentieth century showed that when herring moved further south, it was tied into water flow (temperatures) and the movement of their food source.²¹

The success of the Scottish North Sea herring fishing industry is derived from its location in relation to the North Atlantic inflow. Scotland’s position along the continental shelf of Europe

¹⁷ Coull, *Sea Fisheries of Scotland*, 54.

¹⁸ More on this will follow but see Poul Holm, Francis Ludlow, Cordula Scherer, Charles Travis, Bernard Allaire, Cristina Brito, Patrick W. Hayes, J. Al Matthews, Kieran J. Rankin, Richard J. Breen, Robert Legg, Kevin Loughheed, and John Nicholls, “The North Atlantic Fish Revolution (ca. AD 1500),” *Quaternary Research* n.d., (2019): 1-15.

¹⁹ Ad. Corten, “Herring and Climate: Changes in the Distribution of North Sea Herring Due to Climate Fluctuations” PhD Diss., University of Groningen, 2001, 14.

²⁰ Poulsen, *Dutch Herring*, 77; Goodlad, *Shetland Fishing Saga*, 25; Coull, *Sea Fisheries of Scotland*, 13-14.

²¹ Corten, “Herring and Climate,” 21.

and the meeting of currents from the Atlantic and the North Sea and Baltic, puts it near one of the most productive fishing areas of the North East Atlantic Ocean, and makes it an important location for herring fishing (see figure 3.1). This shelf extends about 400 miles along eastern Scotland and 100 miles along western Scotland, with cool, temperate water that provides conditions where phytoplankton thrive.²² The North Atlantic Current pushes relatively warm, saline, and nutrient-rich water into the North Sea and with strong westerlies in the early spring, this allows for upwelling off the Scottish coast (see figure 3.2). Autotrophs like phytoplankton thrive in those conditions, which then feeds heterotrophs, like zooplankton, that smaller fishes such as herring then eat. These nutrient rich waters flow into the North Sea at its northern edges through Shetland and Orkney, the Shetland Shelf, and the Norwegian trench. In addition, part of the North Atlantic inflow that passes through Shetland and Orkney then makes its way down the east coast of Scotland towards the English Channel, which means that Shetland, Orkney, and the eastern coast of Scotland, benefit greatly when there is a regular occurrence of the North Atlantic inflow and significant increases in plankton.²³

At the upper levels of the sea, with abundant sunlight, plankton thrive. While herring primarily eat zooplankton, phytoplankton serve as the indirect food source for herring since they create their own food through photosynthesis when they turn minerals in the sea into food and are consumed by zooplankton. While this area of the North Sea and Atlantic is not as productive as areas with much greater upwelling, like off the coast of Peru, it is up to 20 times more productive than most other places in the ocean (see figure 3.2).²⁴ Those conditions bring in large

²² Gray, *The Fishing Industries of Scotland*, 1; Coull, *Sea Fisheries of Scotland*, 12.

²³ N. G. Winther and J. A. Johannessen, "North Sea Circulation: Atlantic Inflow and Its Destination," *Journal of Geophysical Research* 111 (2006): 1-12.

²⁴ Coull, *Sea Fisheries of Scotland*, 12-13.

numbers of herring that are typically tertiary consumers eating the zooplankton that consume phytoplankton. Therefore, the availability and location of phytoplankton, and in turn zooplankton, often determines the location and size of a herring population.

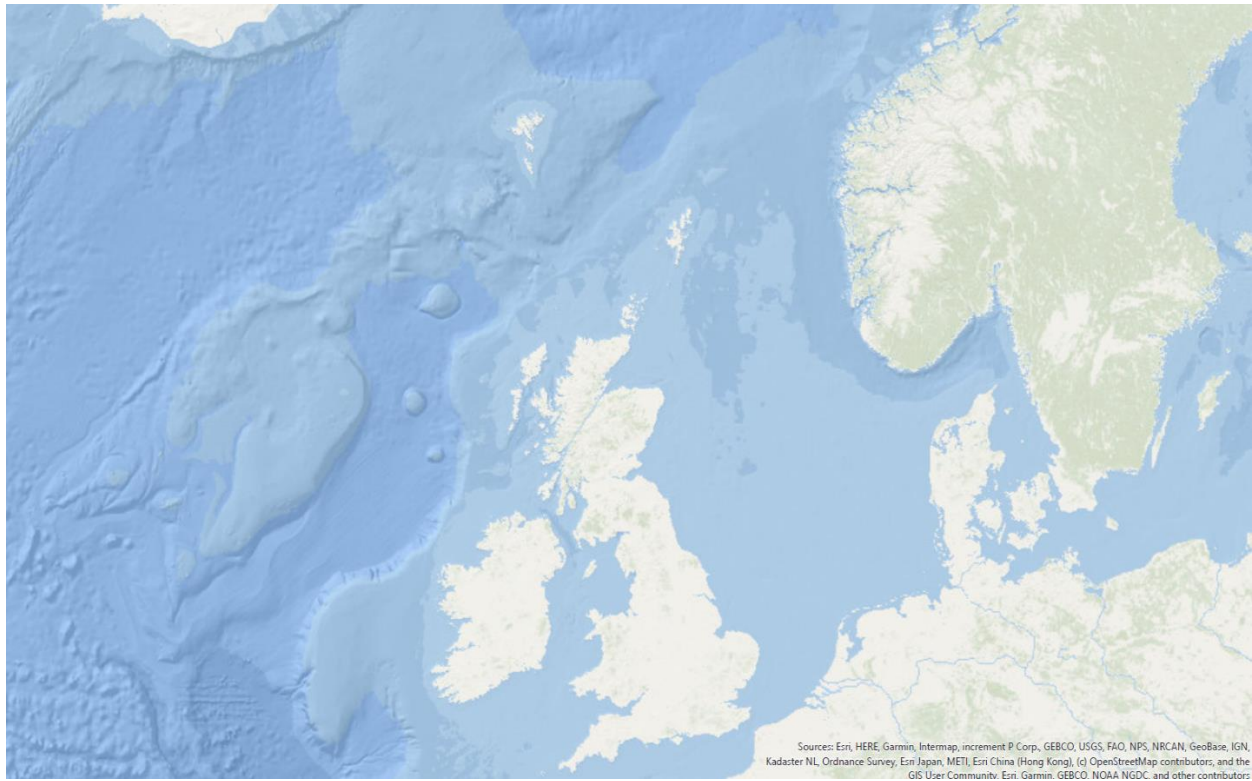


Figure 3.1. Bathymetric Map of the North Seas

Source: Map created by author with data adapted from: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community, Esri, Garmin, GEBCO, NOAA NGDC, and other contributors.

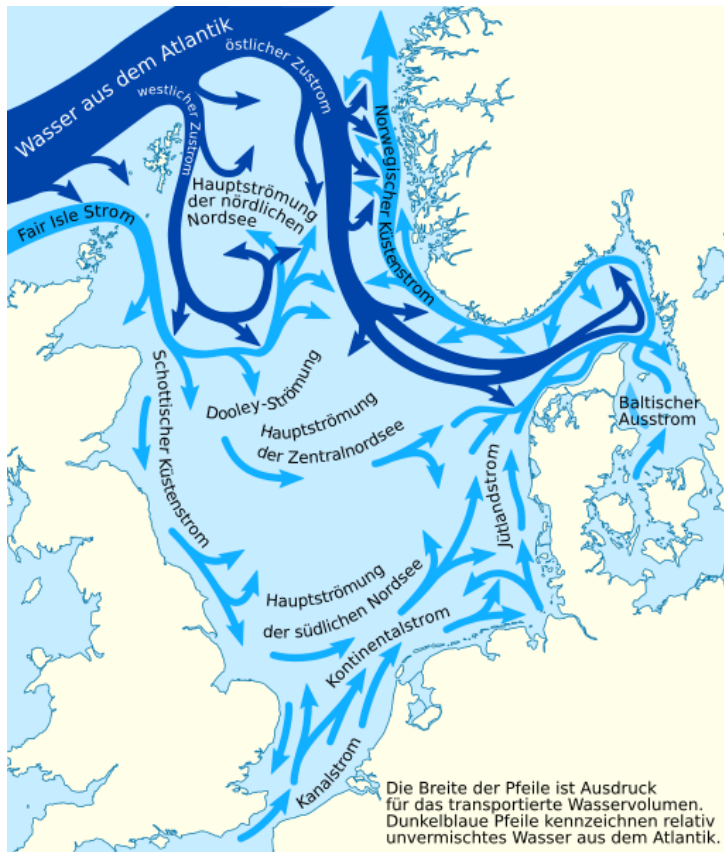


Figure 3.2. Currents in the North Sea.

Note the areas near Shetland where the warmer waters (darker blue) of the North Atlantic Current meet the cooler waters of the North Sea (light blue), creating areas with greater upwelling.

Source: MagentaGreen [CC BY-SA 3.0 (<https://creativecommons.org/licenses/by-sa/3.0/>)]

There are fourteen major groups of phytoplankton and zooplankton found in the North Sea and around Scotland that herring consume. Of these, three react strongly to the Atlantic inflow and associated temperature changes by moving in and out of the North Sea around Scotland. One group of phytoplankton species is closely associated with North Atlantic waters and is typically found in the western and northwestern North Sea because this area receives direct inflowing Atlantic water (i.e. warmer, nutrient rich water). This first group can be found during the summer months but then disappear by the start of the new year. A second group

consisting of primarily zooplankton species have a wide range in the central and northern North Sea and can consist of up to 75% of a herring's diet. This group thrives in the North Sea. A third group consisting of both zooplankton and phytoplankton is also bound in the North Sea by the Atlantic inflow.²⁶ Plankton are influenced by the temperature of the water coming in from the Atlantic, and Shetland is often the point where many herring species overlap as they follow their food and reproduce. Winter brings cooler water near 5-6°C that reduces the productivity of plankton and slows down the food chain, but warmer waters during spring, near 13°C, allows production to boom again.²⁷ More simply, all three groups of plankton are tied into the seasonal Atlantic inflow and are crucial to when and where herring are found near Scotland.²⁸

There are over 200 species of herring, of these, less than 5% live and spawn near the Scottish coast. Other species of herring can be found within the North Sea, especially near Norway, however, with one exception, those herring do not make it near Scottish coasts. The general pattern for catching herring in the North Sea begins in the winter months off the coast of western Scotland and moves northeast to Shetland and Orkney and then along the eastern coast of Scotland down to the English Channel by the end of the year. Four species of herring can be found more frequently along Scotland's eastern coast and each species has its own migration behavior that makes Scotland a coveted herring fishing location. Together, these species made it possible for herring to be caught in at least three seasons near Scottish waters, however, the best herring fishing was in the summer months when herring were fatter from feeding, and during spawning, when female herring laid their eggs, and large schools of herring came together. More

²⁶ Corten, "Herring and Climate," 45-55; Coull, *Sea Fisheries of Scotland*, 17-19.

²⁷ Coull, *Sea Fisheries of Scotland*, 13.

²⁸ Goodlad, *Shetland Fishing Saga*, 20-21; Christos D. Maravelias, "Habitat Associations of Atlantic Herring in the Shetland Area: Influence of Spatial Scale and Geographic Segmentation," *Fisheries Oceanography* 10 (2001): 259-267.

modern fishermen claim that when a herring school was nearby, often during spawning, they brought together large groups of predators. It was often possible to find these schools of herring above water by finding the seabirds circling above the herring school.

The three major herring species (*Culpea harengus*) off Scotland's North Sea coasts are Buchan, Bank, and Downs herring. Buchan herring are found in the more northerly latitudes between Shetland and Aberdeen in mid to late June and are then fished in these waters. Bank herring winter off Norway but with warmer spring waters they migrate west moving off the coasts of Scotland and are fished from April through September. They spawn in the middle of the summer months along the English coastline near Yorkshire and Norfolk and as far down as the Dogger Bank. Downs herring spawn last in the autumn near the English Channel.²⁹

Collectively, these herring swim around the North Sea in a counterclockwise pattern during the year and the Buchan herring arrive off Shetland in June to start off the season. Because of the location of the spawning herring, the Shetlands, Orkneys, and the Scottish eastern coast played a key role with herring fishing and the fishing industry (see figure 3.3).³⁰

²⁹ Coull, *Sea Fisheries of Scotland*, 17-19; Mark Dickey-Collas, R.D.M. Nash, Thomas Brunel, Cindy J.G. van Damme, C. Tara Marshall, Mark R. Payne, Ad. Corten, Audrey J. Geffen, Myron A. Peck, Emma M.C. Hatfield, Niels T. Hintzen, Katja Enberg, Laurence T. Kell, and John Simmonds, "Lessons Learned from Stock Collapse and Recovery of North Sea Herring: A Review," *ICES Journal of Marine Science* 67 (2010): 1876.

³⁰ James R. Coull, "Towards a Sustainable Economy for the Shetland Islands: Development and Management Issues in Fishing and Fish Farming," *GeoJournal* 39 (1996): 186-187.

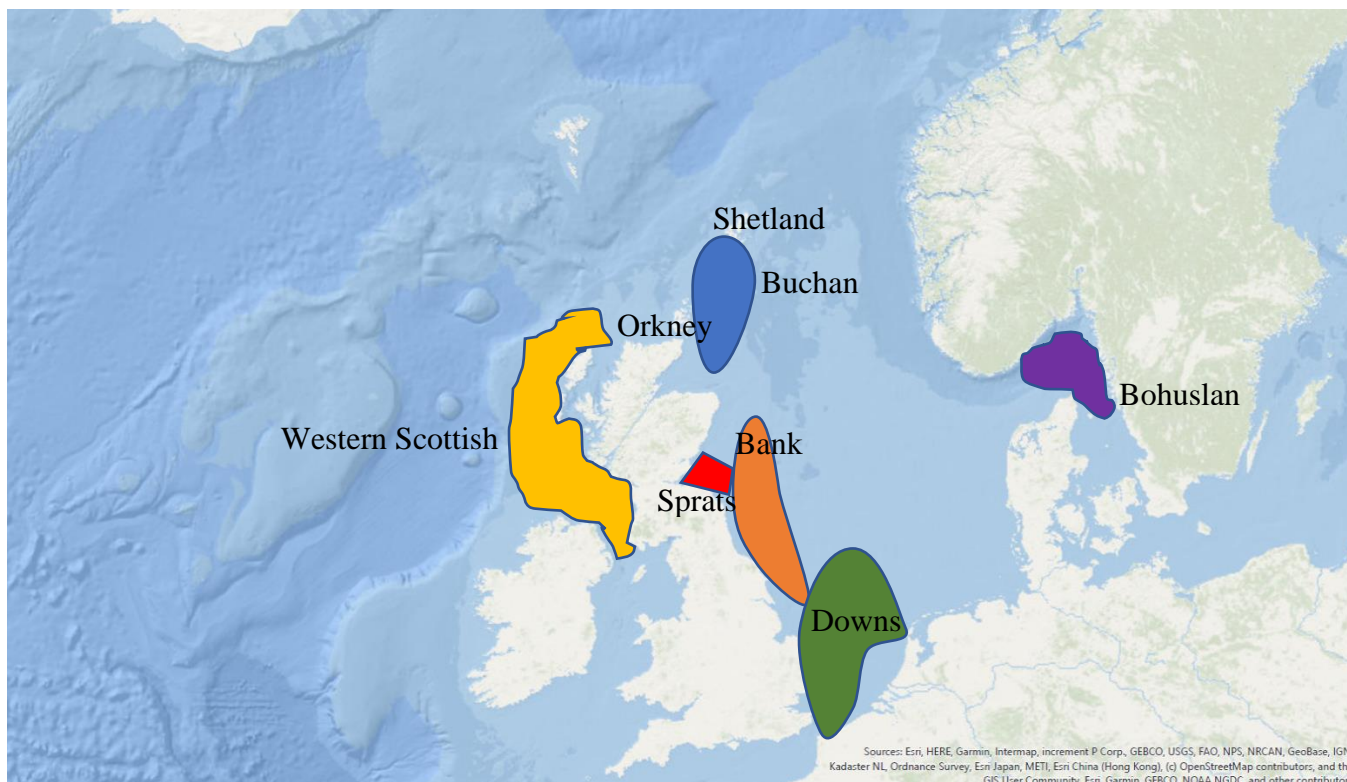


Figure 3.1. Map of the Scottish North Seas Herring Locations for the Seventeenth Century.

Source: Map created by author adapted from: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community, Esri, Garmin, GEBCO, NOAA NGDC, and other contributors.

There is also a smaller, less coveted species of herring found in the Firth of Forth known as the “sprats” or “garvies” herring. These are typically smaller than the three other North Sea herring species and are fished later in the season. Many of these herrings were exported to England for smoking because of their smaller size and slower decomposition.³¹ In addition, there is a separate species of Clyde herring in western Scotland found near the River Clyde, Loch Fyne, and as far north as the Shetland coast. These too are typically a bit smaller, living only 5-6

³¹ Coull, *Sea Fisheries of Scotland*, 18.

years, compared to the 10-12 years of the three North Seas herring, and fished during the late winter and early spring months.³² They become more important during the recovery in the late seventeenth century discussed in later chapters, and thus become important within the union debates.

More recent models and studies demonstrating the patterns of herring and their relationship to plankton movement can help us compare those conditions with the seventeenth century. The more common plankton species that migrate into the North Sea from the Atlantic, cannot survive colder water temperatures typically found in winter. They return, following the Atlantic inflow, when water temperatures are warmer like those typically found in spring and summer.³³ For example, in 1983 herring returned to Aberdeen after an absence of about 16 years after a marked increase of the Atlantic inflow, which saw warmer, nutrient-rich water that caused more plankton to be available for herring.³⁴ More recently we see a reverse trend of herring movement. As water temperatures increased and warmer water shifted northward over the period from 1960-1990, the catch locations of herring drifted northward, which demonstrated how important environmental conditions are for herring.³⁵ Herring are very much the goldilocks of fish, where everything needs to be just right between water temperature and availability of food source for them to thrive.

³² Coull, *Sea Fisheries of Scotland*, 17-19.

³³ Corten, *Herring and Climate*, 31; M. Dickey-Collas, et. al., "Lessons Learned from Stock Collapse," 1876-1880.

³⁴ Corten, *Herring and Climate*, 62, 72; a similar scenario occurred near Shetland, Coull, "A Sustainable Economy in the Shetland Islands," 187; Over fishing was also a likely co-contributor in stock declines throughout the United Kingdom in this period, see David Whitmarsh, Christopher Reid, Clifford Gulvin, and Michael Dunn, "Natural Resource Exploitation and the Role of New Technology: A Case History of the UK Herring Industry," *Environmental Conservation* 22 (1995): 103-110.

³⁵ Corten, "Herring and Climate," 103.

Herring, There, and Everywhere

The location of these herring shoals put Scotland at the center of a much larger North Seas World where marine fishing was concerned, that during the early modern period, stretched from the Icelandic shores and even extended into the Baltic Sea, and developed a shared culture in what has become commonly referred to as a North Seas Culture or World.³⁶ While many goods, ideas, and peoples helped develop and create this North Seas World, fishing was one of the most important.³⁷ With the expansion of fishing during the early modern period and because of its rich marine ecosystem, it was not long before others began fishing off the coasts of Scotland. Flemish and Dutch accounts record fishing off Scottish coasts beginning in the fourteenth century. By the fifteenth century commercial fishing and more significant exports of fish began to grow in significance throughout the North Seas World. The Scottish fishing trade expanded with the help of James III's declaration that Scotland too, would create its own North Sea fishing fleet.³⁸ The Scottish Parliament passed various laws during the next few centuries to encourage Scottish fishing in the North Sea, but it was first Hanseatic fishers and merchants and later the Dutch who ultimately became the major producer of fish exports from the North Sea; chief among those exports was herring. Although commercial herring fishing existed in the medieval period, it was not until the rise of Hanseatic and Dutch fishing and their significant

³⁶ Juliette Roding and Lex Heerma van Voss, *The North Sea and Culture (1550-1800): Proceedings of the International Conference Held at Leiden 21-22 April 1995* (Hilversum: Verloren, 1997), 496; Hanno Brand, *The Dynamics of Economic Culture in the North Sea- and Baltic Region: In the Late Middle Ages and Early Modern Period* (Hilversum: Verloren, 2007); Michael Pye most recently popularized this argument in *The Edge of the World: A Cultural History of the North Sea and the Transformation of Europe* (New York: Pegasus Books, 2016).

³⁷ De Vries and Van der Woude described it as one of the most lucrative trade items along with salt, cloth, and wine and discussed the economic ramifications of its collapse in the mid-seventeenth century. See *The First Modern Economy*, 243-47.

³⁸ Peter Anson, *Fishing Boats and Fisher Folk on the East Coast of Scotland* (London: J.M. Dent & Sons Limited, 1974), 1-2; Coull, *Sea Fisheries of Scotland*, 4.

herring export market in the fifteenth century that Scottish herring fishing began to look more offshore rather than what could easily be caught nearby.³⁹

During much of the early modern period, the North Sea was a herring fishing hotbed. It was part of the Atlantic fish revolution that saw the amount of fish caught dramatically increase and the price of fish drastically drop by the sixteenth century.⁴⁰ Several European regions drove the demand for herring, but chief among those was the Baltic. As the demand for herring grew throughout the Baltic, Dutch and Hanseatic fisherman and merchants began to more actively fish the North Sea and the areas around the coasts of Scotland. While en route to the Baltic markets, goods, like preserved herring, were assessed a toll to the Danish king before passing through the Danish Sound in return for safe passage between the narrow straits of Denmark.⁴¹ The records kept by the Danish Sound Toll list the products each ship transported, the ship's origin, and its destination. What these records disclose, which is displayed in figures 3.4 and 3.5, was that the Dutch were the largest exporter of herring in the North Seas World until the eighteenth century.

³⁹ Coull, *Sea Fisheries of Scotland*, 54.

⁴⁰ For more on this fishing revolution see Poul Holm, et al., "The North Atlantic Fish Revolution (Ca. AD 1500)," *Quaternary Research* n.d., (2019): 1-15.

⁴¹ For more information on the Danish Sound toll registers see Nina Ellinger Bang, *Varetransport gennem Oresund 1497-1660*, vol. 1 (Copenhagen: s.l., 1922); *Varetransport gennem Oresund 1497-1660*, vol. 2 (Copenhagen: s.l., 1932); Nina Ellinger, Bang, and Knud Korst, *Tabeller Over Skibsfart Og Varetransport Gennem Øresund 1661-1783 Og Gennem Storebælt 1701-1748. Tables De La Navigation Et Du Transport Des Marchandises Passant Par Le Sund* (Copenhagen: s.l., 1930); *Studies in the Sound Toll Register and Dutch Shipping Records* (Copenhagen: s.l., 1941); See also Sound Toll Registers Online, <http://dietrich.soundtoll.nl/public/index.php>.

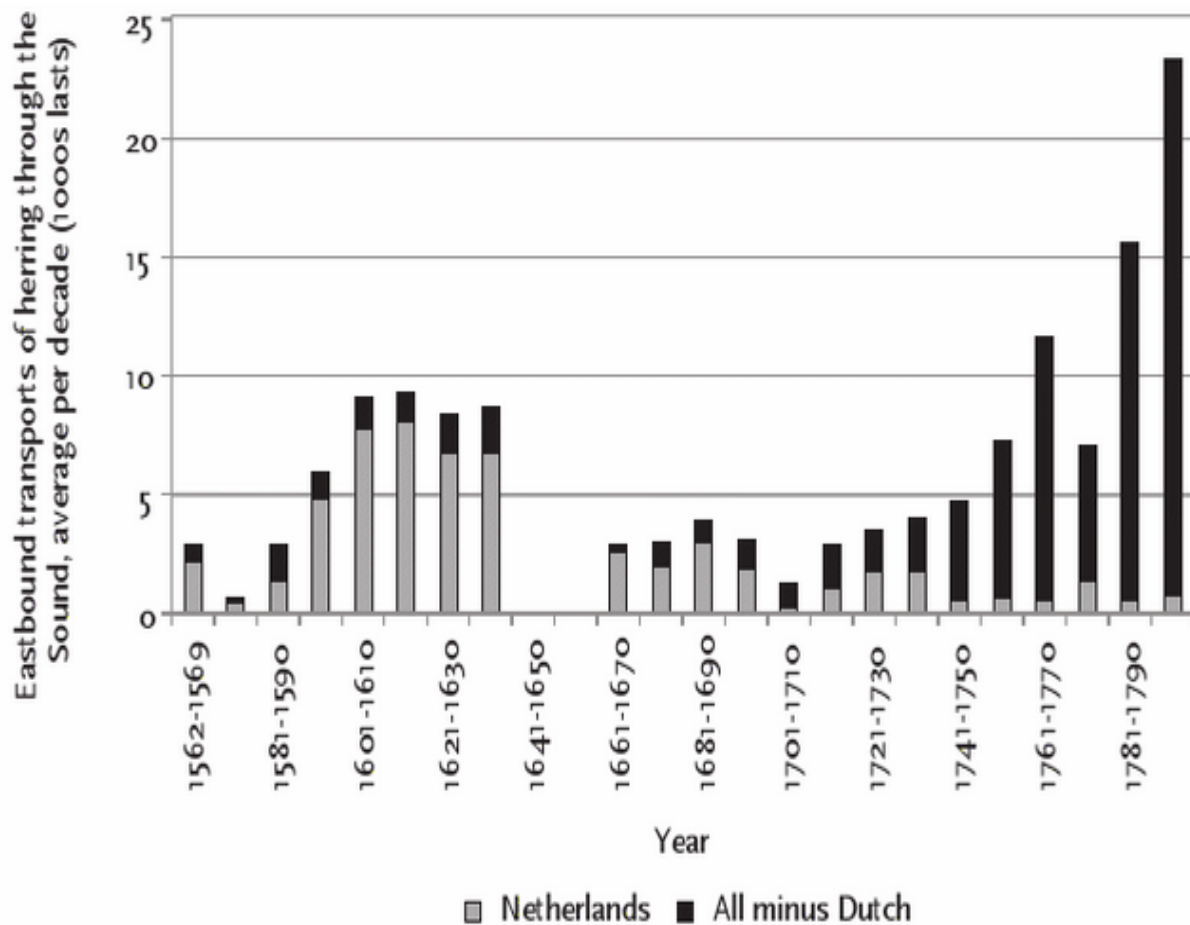


Figure 3.4. Herring transported into the Baltic from the North Sea, 1562-1800.

Source: Poulsen, *Dutch Herring*, 85; reproduced by permission of Amsterdam University Press.

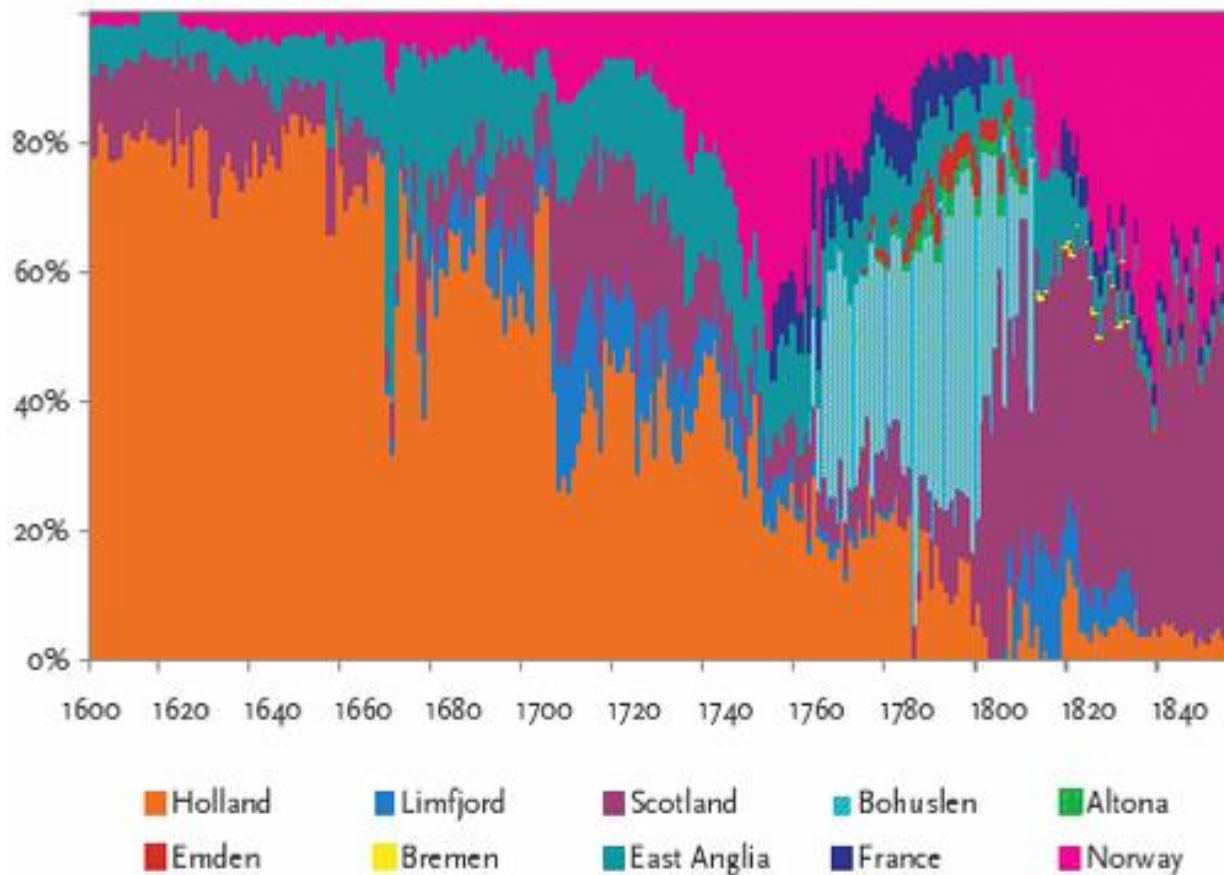


Figure 3.5. Relative share of salted herring caught by major North Sea producers, 1600-1840. Source: Poulsen, *Dutch Herring*, 71; reproduced by permission of Amsterdam University Press.

Dutch technology played a vital role in their rise and domination of the herring fish industry. The most important of which was the herring buss that transformed a ship into something more akin to a herring ‘factory.’ The buss itself generally carried between 60-100 tons, it was two or three-masted, with as many sails, it had a curved bow, a rounded stern, and looked like an oblong rectangle with rounded corners.⁴² The herring buss, like the one in figure 3.6 utilized forty to eighty nets that between 13 and 30 workers tossed over the side of the ship. Six to eight people worked a system of ropes and pulleys to bring in the nets. A few others would then shake out the

⁴² Unger, “Dutch Herring Technology,” 259.

nets while the bulk of the crew gathered the fallen fish on deck. Next came the processing and preservation of the herring, which were gutted, salted, and then packed away in the hold in barrels. This onboard processing set Dutch herring fishermen apart from most others in Europe.⁴³ The herring buss and method of preservation using salt and barrels allowed Dutch fishermen to efficiently preserve and package fish onboard, rather than taking the time, effort, and risk to return to shore shortly after making a catch. This made it possible for Dutch fishing boats to stay out at sea for weeks or even months at a time, which provided them with a distinct advantage over most other fishermen during the seventeenth century. Today, these innovations might not seem like much, but the herring buss was so highly valued that the Dutch government consistently prohibited the export of busses.⁴⁴

These Dutch technological innovations also meant that they were able to fish during multiple ‘seasons,’ and that they could follow schools of herring to various locations, whereas most North Seas fishermen had only one chance or season to catch herring while they were close to their shores. This meant that Dutch herring vessels sailed in large groups around the North Sea, with 400-500 ships regularly in any location where herring were present.⁴⁵ By comparison, most Scottish herring fishing occurred close to shore when herring schools migrated close to the coasts. It relied upon smaller fishing craft of 8-30 tons utilizing drift nets and seines operating on much smaller scales with crews of four to seven men.⁴⁶ Despite their smaller size, Scottish boats

⁴³ Goodlad, *Shetland Fishing Saga*, 84.

⁴⁴ Unger, “Dutch Herring Technology,” 260.

⁴⁵ De Vries and Van der Woude, *The First Modern Economy*, 244.

⁴⁶ Bob Harris, “Scotland’s Herring Fisheries and the Prosperity of the Nation c. 1660-1760,” *The Scottish Historical Review* 79 (2000): 40-1; Poulsen, *Dutch Herring*, 56; See also James R. Coull, “The Scottish Herring Fishery 1800-1914: Development and Intensification of a Pattern of Resource Use,” *Scottish Geographical Magazine* 102 (1986): 4-17; James R. Coull, “Fishery Development in Scotland in the Eighteenth Century,” *Scottish Economic and Social History* 21 (2001).

and crews were still quite active as they could travel to Norway to trade their catch, returning to Scotland with timber, for example, which made their fishing industry quite important for many local communities.⁴⁷ However, most traveled much more locally, catching herring near the Forth and exporting them to Newcastle or other English ports. This was typically done with thinner herring which spoiled more slowly because of its lower fat content and allowed them to be smoked for longer preservation.⁴⁸

As Dutch fisherman followed the herring, it put them along the coast of Scotland for most of the summer and off the coasts of England by the autumn months. Figure 3.7 demonstrates the path that Dutch herring busses and supporting ships took during a fishing season.⁴⁹ These ships spent, at the very least, parts of two months near Shetland and Orkney in the far north of Scotland, then moved back south along the eastern Scottish coast, before returning to the waters off northern Scotland for autumnal fishing.⁵⁰ Hospital ships and other specialized supply and merchant ships followed the herring busses and stopped frequently at the Shetlands and occasionally at other Scottish ports for supplies. This created a market in Scotland based upon Dutch fishing.⁵¹ Because so many Dutch ships were near Scotland's eastern coasts and considering that the Scottish numbers of fish caught was small compared to the Dutch, it is important to visualize the Scottish fishing industry as something that comprised far more than Scottish ships catching fish. In fact, it included an entire range of occupations and productions aimed at serving the huge Dutch fleet and Scottish vessels.

⁴⁷ Coull, *Sea Fisheries of Scotland*, 66.

⁴⁸ Coull, *Sea Fisheries of Scotland*, 60-1.

⁴⁹ Poulsen, *Dutch Herring*, 200.

⁵⁰ Richard Unger, "Dutch Herring, Technology, and International Trade in the Seventeenth Century," *The Journal of Economic History* 40 (1980): 255-266.

⁵¹ Coull, *Sea Fisheries of Scotland*, 64-69.



Figure 3.6. "Dutch Indiamen Passing Herring Busses" by Bonaventura Peeters
Source: Image from Caravaggista, Painting held at National Maritime Museum, Greenwich, London. <http://collections.rmg.co.uk/collections/objects/12254.html>

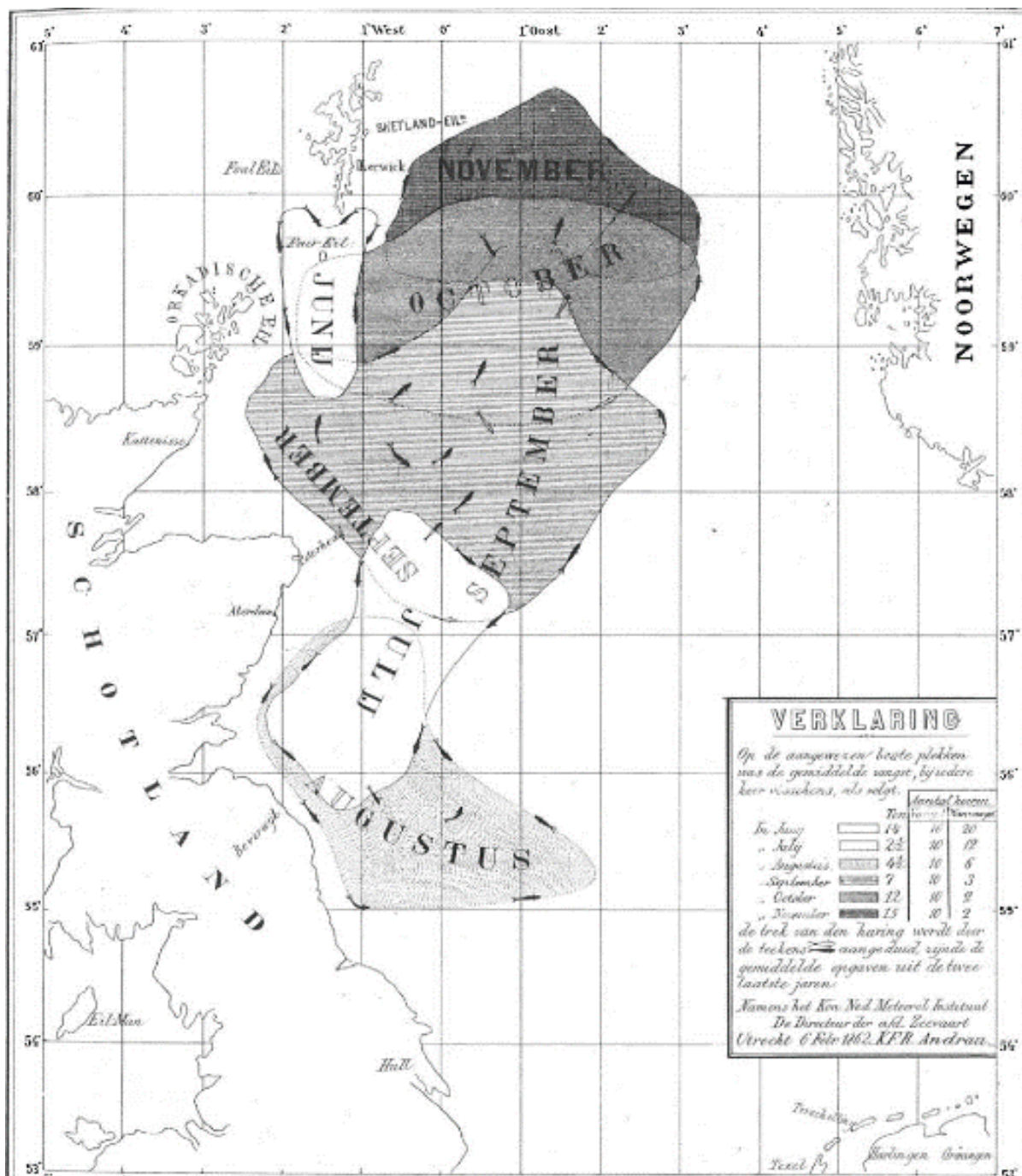


Figure 3.7. Nineteenth-century Dutch map showing monthly locations for herring fishing. Note the shift north from the seventeenth century for the latter months of herring fishing.

Source: Poulsen, *Dutch Herring*, 166. Reproduced by permission Amsterdam University Press.

Just as the automobile industry of North America in the mid-twentieth century involved far more than assembly plants in Detroit or Dearborn, the herring industry in Scotland consisted of a veritable *industrial complex*. A fictional conversation from 1699 between an Englishman and Dutchman provides insights into how extensive the Scottish and North Seas fishing industry was, both geographically and economically, and how many occupations were involved in the catching of fish. The ‘Dutchman’ in this account claimed that fishing employed 450,000 people in the Netherlands or approximately 20% of the Dutch population. Just the occupations involved in outfitting the fishing craft involved “anchorsmiths, bakers, ballastmen, basketmakers, brewers, butchers, carpenters, caulkers, clap board splitters, compass makers, coopers, duckweavers, hemp dressers, hook makers, joiners, line makers, mariners, mast makers, net makers, net tanners, plumbers, pulley makers, pump makers, rope makers, sail makers, sawyers, ship chandlers, ship wrights, tallow chandlers, thread and twine spinners.” As extensive as this list already was, it still did not include contributors involved in the preservation of herring including salt and coal mining operations and other aspects of production detailed in chapter four.⁵⁹ Dutch fishing craft themselves also employed many Scots, as well as English and Irish, among their sailors and fishing crews.⁶⁰

In addition to the jobs provided by the herring industrial complex, there are also the materials necessary for these industries which further demonstrates the interconnections amongst the North Seas World. Scottish ships, for example, typically utilized Norwegian timber, as did the barrels for storing and transporting herring. The salt utilized for herring exports was imported from the Netherlands, which likely obtained it from European Atlantic coasts, the Mediterranean,

⁵⁹ J. Puckle, *England's Path to Wealth and Honour* (London: s.l., 1699), 8-9.

⁶⁰ Puckle, *England's Path to Wealth and Honour*, 27.

or later, mined salt from geological formations on the Continent. The materials for net, ropes, and sails would also have been imported from the Netherlands, though they were likely manufactured in Scotland by the end of the seventeenth century. Iron for barrel rings came from Sweden. The herring industrial complex profoundly affected patterns of life in coastal communities in Scotland and across the North Seas World.

Additionally, by trading herring, the Dutch could obtain the materials required for many of these occupations and it provided opportunities to further expand their economic reach. If nothing else, this brief outline of a herring industrial complex demonstrates the interconnections amongst the North Seas World and also how it engaged with larger markets. For example, herring provided access to lace, tapestries, specie, oils, silks, and satin from the Levant and Asian trade; from German states, the Dutch obtained plate for armor, munitions, glass, iron, millstones, wines, silks, velvet, and specie; from the Baltic herring provided copper, grains, flax, hemp, iron, pitch, tar, timber, wax, and specie; from France, Spain, and Portugal they received specie, salt, honey, oils, wines, prunes, wool, and grains.⁶¹ The most essential items for herring fishing, timber, flax or hemp, iron, and salt were all imported from the North Seas world. Herring was one of several commodities that provided access to these larger markets.

Because Hanseatic and later Dutch merchants had been so successful in creating wealth from herring fishing, in view of its value and importance, Scottish Parliamentary legislation attempted to control the herring industry and keep it solely in the possession of Scotland. An act from the Scottish Parliament in 1662 attempted to ban foreigners from Shetland, however, the island's inhabitants pleaded that Parliament change the law since it would damage their

⁶¹ J. Puckle, *England's Interest, or a Brief Discourse on the Royal Fishery in a Letter to a Friend* (London: J. Southby, 1695), 3-4.

livelihood. Claiming that people would starve since “3/4 of the islanders['] corn... and much other provisioun [sic]” was brought into Shetland by “lubeckers, hamburgers, and others.”⁶² From this account we see additional evidence of the ties linking Scotland within a larger North Seas World. Another act tried to prohibit Dutch fishing within 28 miles of the shore, but this was rarely enforced, not least of which because of the symbiotic economic relationship that existed between Scottish merchants, coastal communities, Dutch fishing vessels, and the web of North Seas relationships they entailed.⁶³ It would have also been difficult for the very limited Scottish navy to enforce. As these passages suggest, although Scottish herring fishing was itself a small-scale operation when compared to the Dutch, many Scottish coastal communities depended upon the herring industry for their survival. This was especially true for coastal and island communities particularly in Shetland, Orkney, northeastern Scotland, and the western isles who relied upon the trade and maritime products that herring brought into Scotland. Fishing ships were a vital part of the Scottish economy as many North Seas vessels stopped at Scottish islands and coastal towns to resupply and, in turn, supplied these communities with many essential items, including foodstuffs.⁶⁴

Since the fishing industry was essential for the subsistence and prosperity of many coastal locations, if fishing activity declined, so too would have many of these coastal communities, especially more marginal ones. In places like Shetland and Orkney this involved Dutch and

⁶² Scotland, Privy Council, *The Register of the Privy Council of Scotland Ser. 3 Vol 1 1661-1664* (Edinburgh: H.M. General Register House, 1898), 182.

⁶³ Goodlad, *Shetland Fishing Saga*, xvii.

⁶⁴ See Bo Poulsen, “The Variability of Fisheries and Fish Populations prior to Industrialized Fishing: An Appraisal of the Historical Evidence,” *Journal of Marine Systems* 79 (2010), 327-332; Corten, “Herring and Climate,”; E. E. Rich, C. H. Wilson, and M. M. Postan, “European Fisheries in the Early Modern Period,” in *Cambridge Economic History of Europe* (Cambridge and New York: Cambridge University Press, 1977).

Hanseatic ships stopping for supplies and trading valuable foodstuffs, especially during times of regional dearth. During the summer fishing season, Hanseatic merchants also set up booths and bought locally caught herring, ling, or cod for transport to eastern destinations within the North Seas World. Shetlanders, for example, set up shops to service Dutch fishermen's needs, which became essential to the local economy.⁶⁵ When the marine climate shifted and the marine ecology became less productive, outside ships stopped less frequently, making these coastal communities less able to support themselves and contributing to an overall depression in international trade involving Scotland.

Herring's Boom and Bust Cycles

While much of the previous section explored the importance of the Dutch and Scottish actors to the success of this North Seas herring industry, the herring themselves should not be overlooked as important actors within this narrative in their own right. Herring respond to their climatic and environmental conditions around them and their responses influenced the actions and decisions of social groups such as fishermen, merchants, politicians, and governments. As Arthur McEvoy noted in his now classic study of *The Fisherman's Problem*, fish and fisheries helped shape legislation on the California coast: "Legal and social institutions, too, are not immutable; rather they are creatures of history, evolving in response to their social and natural environments."⁶⁶ What McEvoy and others have demonstrated, and what is relevant for this chapter's argument, is that the responses of herring to their changing environment, were as

⁶⁵ Michell, *The European Fisheries in Early Modern Europe*, 142; Robb Robinson, "The Common North Atlantic Pool," in David J. Starkey, Neil Ashcroft, and Chris Reid, eds., *England's Sea Fisheries: The Commercial Sea Fisheries of England and Wales Since 1300* (London: Chatham Pub., 2000), 10-11.

⁶⁶ Arthur F. McEvoy, *The Fisherman's Problem: Ecology and Law in the California Fisheries, 1850-1980* (Cambridge and New York: Cambridge University Press, 1986), 13

important as the human responses to those environmental changes. In the case of Shetland and Orkney, herring were the driving force for the social and political changes in these fishing communities leading up to the Anglo-Scottish Union.

Although B. B. Parish was describing the situation of herring in the mid-twentieth century in his chairman's summary of the 1960 ICES Herring Symposium, his statement on herring still resonates well with the North Sea during the Global Little Ice Age.

A feature of these (herring) fisheries...has been the large and often sudden short- and long-term fluctuations and trends in their productivity, bringing periods of great prosperity, and ones of equally striking hardship to the fishing communities and industries engaged in them. In some cases, these fluctuations have been short-lived and sporadic... but in others they have been sufficiently large and sustained as to lead to the complete collapse of traditional fisheries.⁶⁷

Furthermore, this observation provides a valuable vantagepoint for understanding events in Scotland and their relation to a much broader process of unraveling of the early modern North Seas World: that the response of schools of herring to their environment matters profoundly to changes in human affairs. As we will see in the final chapter, in the case of the northern Scottish Union representatives, the decline of herring became relevant to the changing partisanship in Union negotiations.

The Danish Sound Tolls identify that herring fishing went through several boom and bust cycles. There was a large influx of herring transported from the North Sea to the Baltic during the initial decades of the Global Little Ice Age, starting in the 1580s and lasting through the 1630s, mainly transported by Dutch shipping. This was followed by a general decline in the total production of herring during the second half of the seventeenth century lasting until the 1710s and the end of the Global Little Ice Age, when a marked expansion in the eastbound herring

⁶⁷ B. B. Parrish, *Contributions to Herring Symposium, 1961* (Copenhagen: Høst, 1963).

trade reasserted itself, this time dominated by non-Dutch vessels (figure 3.4 and 3.8). There were, though, certain periods when this decline was particularly noticeable. The first occurred in the late 1650s (see figure 3.8) when herring production dropped abruptly from around 80,000 tons per year to below 50,000 and never really recovered. The middle of the 1660s saw an even worse decline, reaching a low of 14,000 tons in 1666. For the rest of the century, the average catch remained about a half of what it had been at the start, averaging around 30,00 tons per year.⁶⁸

In the Scottish herring catch records we see a microcosm of what occurred among the Dutch and other major North Sea producers.⁶⁹ Figure 3.9 illustrates a decline by about a third of the quantity of salted herring produced in Scotland beginning in the late 1640s, then dropping to a low point of around 1,000 tons per year around 1670. There was a modest recovery in Scottish production during the 1680s and 1690s, largely within the Scottish mainland, but the overall numbers do not return to their pre-1640s level until the 1710s.⁷⁰ Scotland's maximum herring production for any year both before and after the waning of the industry during mid-seventeenth century was around 10,000 tons. Although the gap between them was still quite significant, the average Scottish production made them the second largest North Sea herring producer behind the Dutch, as figures 3.4 and 3.9 illustrate, followed closely by East Anglian ports in England.⁷¹

⁶⁸ Poulsen, *Dutch Herring*, 69

⁶⁹ For more on Scotland's participation during the early modern period see Martin Rorke, "The Scottish Herring Trade, 1470-1600," *The Scottish Historical Review* 84 (2005): 149-165.

⁷⁰ Poulsen, *Dutch Herring*, 55.

⁷¹ Poulsen, *Dutch Herring*, 55.

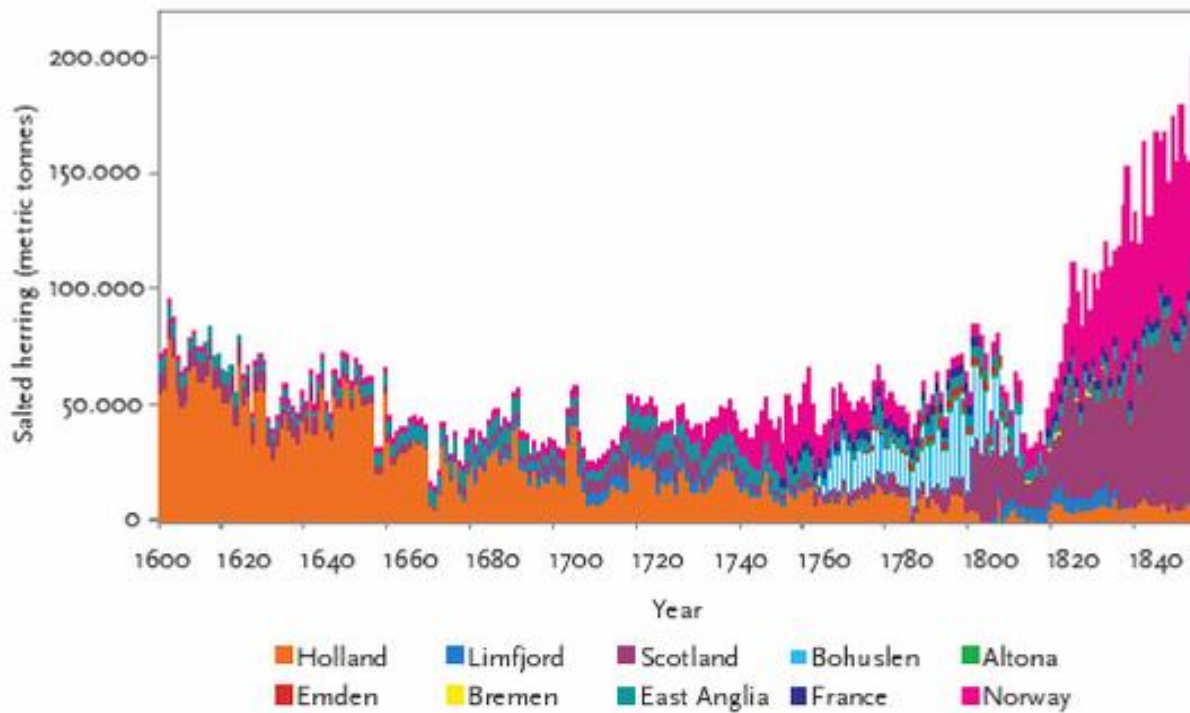


Figure 3.8. Salted herring production by major producers in the North Sea 1600-1850.

Source: Poulsen, *Dutch Herring*, 70. Reproduced by permission of Amsterdam University Press.

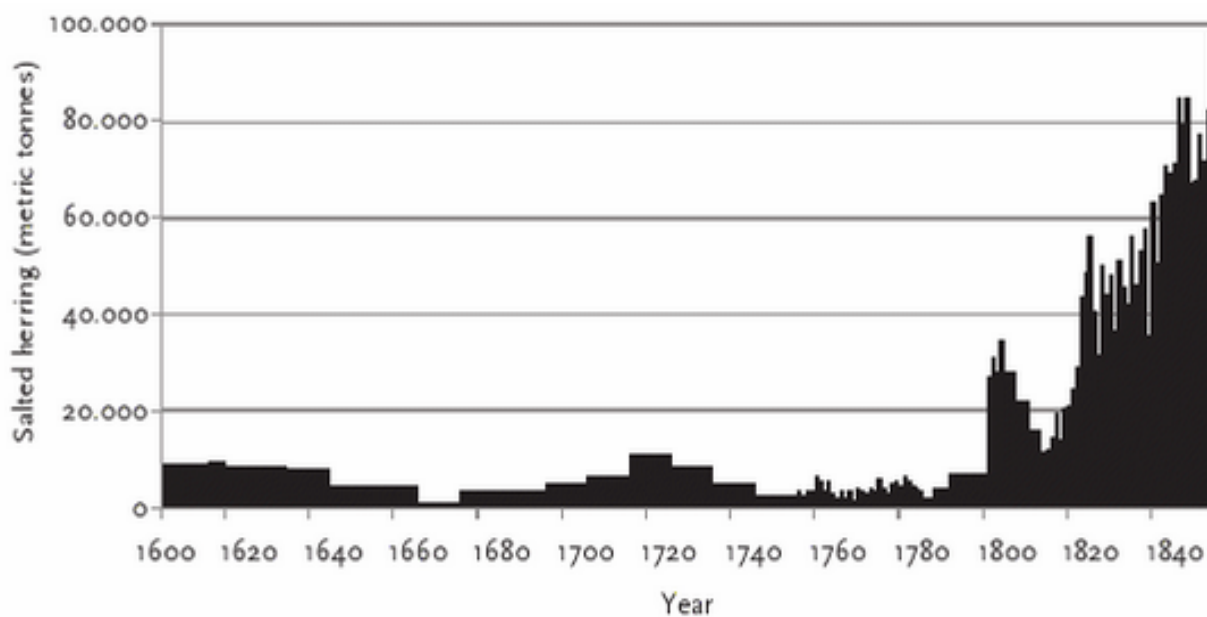


Figure 3.9. Estimated production of salted herring in Scotland, 1600-1850.

Source: Poulsen, *Dutch Herring*, 54. Reproduced by permission of Amsterdam University Press.

From Scottish travel accounts at the beginning of the eighteenth century, and the catch and tax records of the Dutch and Danes listed above, there was clearly a notable change with the herring population starting in the 1650s, that led to an overall decline in catches lasting until the 1680s. Until recently, it was thought, at least when looking at the Dutch herring catch records, that herring were overfished in the seventeenth century, thus resulting in both increasing effort and declining catch numbers. More recently, though, Bo Poulsen in *Dutch Herring* (2008) and Adrianus Corten in *Herring and Climate* (2001) have both shown that the long-term decline in herring catches in the seventeenth century was not because of overfishing in the North Sea. Poulsen utilized today's catch allowance numbers and compared those with a reconstructed analysis of herring caught between 1600-1860 to show that overfishing had not occurred in the North Sea and North Atlantic between 1600-1860. In fact, the numbers were not even close (150,000 tons caught per year then versus the 500,000 tons allowed today) making it so that "fishing pressure in the period 1600-1860 is not likely to have affected fish stock."⁷²

Human cultural factors such as diet preferences likely influenced herring catch numbers to an extent, but they were not the only influences on the fishing effort. The consumption of herring and cod both grew dramatically during the early modern period as the price of these fish dropped and catches increased.⁷³ Overall Scottish fish consumption was not likely to have affected herring numbers, especially since herring was typically an export product. As Poulsen posited, Scots did not eat much herring and did not have a tradition of doing so, with some exceptions along the coast. In accounts from Scottish households between 1639-1790 fish

⁷² Poulsen, *Dutch Herring*, 75-80.

⁷³ Holm, "Fish Revolution," 1-4.

comprised just 2.1% of food on the table, with most of the Scottish diet consisting of porridge, dairy, and occasionally meat.⁷⁴

Warfare was only a short-term factor of a herring catch decline. The number of Dutch herring ships at sea declined during the Anglo-Dutch Wars (1652-54, 1665-67, and 1672-74), and although this is also supported by an overall decline in the number of fish caught per year throughout the second part of the seventeenth century, the overall decline of herring catches was much longer lived than just during the wars. For instance, the decline in herring catches was still in place even when the number of ships at sea quickly rebounded when a war ended (see figures 3.9 and 3.14). A closer look at the amount of fish caught per trip, even during the war years verifies that this was a longer trend.

The average Dutch fisherman typically went on one to three herring voyages per season. Beginning in the 1660s, there was a significant decline in the number of herring caught on first trips, that lasted until after 1700. During this time, the average first trip catch was between 300 and 600 kilograms (kg), down from the 500 to 900 kilograms the first-trip catch averaged from 1630 until about 1670.⁷⁵ In this first trip, they would have begun fishing around Shetland and Orkney, typically spending a month or two near those locations and catching Buchan herring. The second trip of the herring season would have put Dutch fishermen further down the Scottish coasts, nearing the border with England, likely catching Bank herring, or a combination of Bank and Buchan herring. Data from this second voyage shows an increase in the first half of this

⁷⁴ Gibson, A. J. S., and T. C. Smout, *Prices, Food, and Wages in Scotland, 1550-1780* (Cambridge and New York: Cambridge University Press, 1995), 225-260; Poulsen, *Dutch Herring*, 99.

⁷⁵ See Poulsen's catch per boat per day at sea for first trip of the season, Poulsen, *Dutch Herring*, 148.

period 1664-1684, but a sharp decline beginning in the mid-1680s.⁷⁶ The third trip would have put Dutch fishermen near the Anglo-Scottish border and further down the English coast, nearing the English channel catching Downs herring. Data from this third trip closely resembled the second.⁷⁷ In addition to this decrease in the first season catch numbers, Dutch fishermen were actually spending more time at sea on the first voyage during this period, but they were still catching fewer fish.⁷⁸ These trends occurred both during and outside of the period of the Anglo-Dutch wars and suggests that something else caused a decline in the first trip catches.

Bohuslan: The Boom and Bust of North Seas Herring

Herring fishing off the Scottish coasts follows a boom and bust cycle. The history of the herring industry denotes several periods where herring leave one location, causing a bust of the local market and then return several years later, to see the local market boom again. During the second half of the seventeenth century, conditions changed drastically enough near northern Scotland to cause the herring to relocate. While it was to Scotland's misfortune that herring numbers significantly declined near northern Scotland during this bust period, they relocated to Bohuslan, Sweden, which saw a herring boom.

The North Sea coast of Sweden typically enjoyed cycles of 40-60-year periods when fish production would boom near the coast. Then when this period ended, the fish production and the fishing industry would collapse. Bohuslan periods occurred when strong easterly winds in the autumn, often associated with a negative North Atlantic Oscillation (NAO), carried fish along a glacial trench to this area off the coast of Sweden. The North Atlantic inflow is also highly

⁷⁶ See Poulsen's catch per boat per day at sea for the second trip of the season, Poulsen, *Dutch Herring*, 149.

⁷⁷ Poulsen, *Dutch Herring*, 148-154.

⁷⁸ See Poulsen, *Dutch Herring*, 144.

influenced by the NAO as it can slow down during periods of lower and negative phases of the NAO.⁷⁹ Figure 3.10 displays the NAO cycles over the past 750 years. Highlighted in red are the known Bohuslan periods and the Bohuslan period from this work is highlighted in green.

Two important these stand out from this image. The first, is that figure 3.10 helps denote several periods of a boom and bust cycle in the herring fishing industry. Second, as this figure demonstrates, the known Bohuslan periods occurred while the NAO shifted from a less positive phase and into a more negative phase. As this figure demonstrates, Bohuslan periods did not occur every time the NAO trended towards a negative phase, but it was trending towards a negative phase when it did occur. The reason Bohuslan periods did not always occur during a negative phase is likely explained by the behavior of herring. For instance, to end the Bohuslan period, there needed to be a strong, and new (younger) class of herring to seek out a new place once the winds changed. Herring are very conservative and will remain in a specific location until the conditions have changed *and* another strong year-class of herring move out.⁸⁰ Figure 3.10 supports this argument as the Bohuslan periods end after the NAO has shifted back from a negative phase.

Climatological records suggest that a likely Bohuslan period occurred in the second part of the seventeenth century. Figures 3.11 and 3.12 reexamine the NAO cycle during the Global Little Ice Age. Figure 3.11 utilizes a 30-year smoothing of the NAO and figure 3.12 displays a reconstruction of the annual NAO. In both figures, note the shift to a negative phase during the 1650s. A shift towards a negative phase of the NAO is usually necessary for the initiation of a Bohuslan period and with the negative NAO usually comes cooler temperatures in Scotland. A

⁷⁹ Winther and Johannessen, “North Sea Circulation,” 7.

⁸⁰ Corten, “Herring and Climate,” 98.

2017 climate reconstruction of the Scottish climate found that the period around this change of the NAO was one of the five coldest periods in Scotland over the past 800 years.⁸¹ In addition, cooler temperatures also could have decreased plankton productivity in some regions as well. All of these factors suggest that conditions were right for a Bohuslan period.

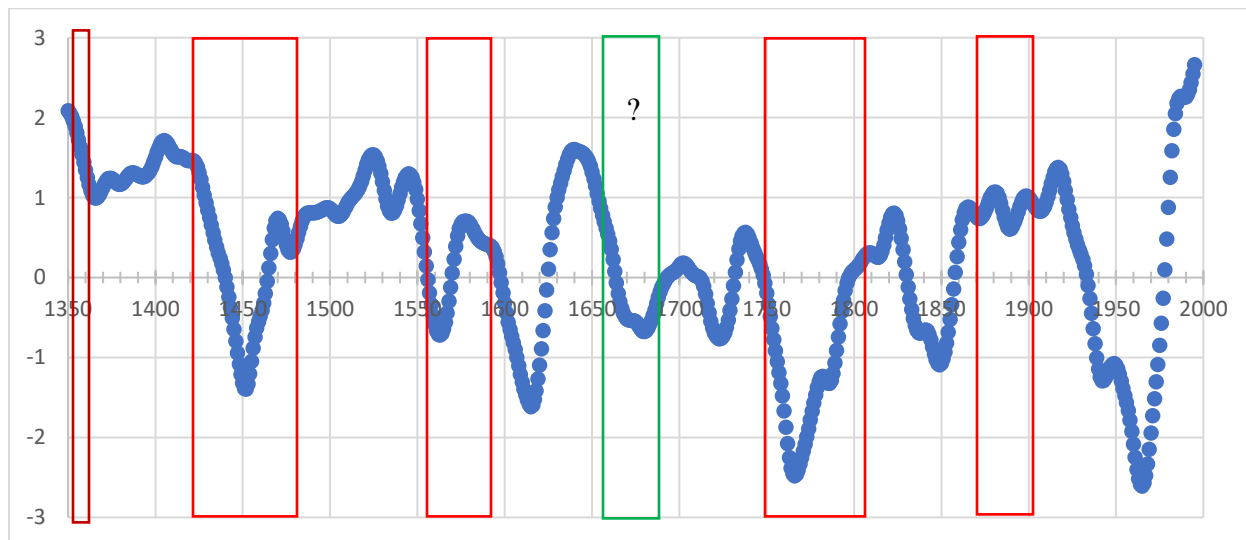


Figure 3.10. NAO reconstruction with known Bohuslan Periods smoothed with a 30-year filter. Y axis measures positive and negative phases of the NAO. Red boxes identify Bohuslan periods and green box identifies Bohuslan period of this study.

Source: Trouet, et. al., “Persistent Positive North Atlantic Oscillation Mode Dominated the Medieval Climate Anomaly,” 78-80; Multi-decadal Winter North Atlantic Oscillation Reconstruction. IGBP PAGES/World Data Center for Paleoclimatology, Data Contribution Series # 2009-033.

⁸¹ Rydval, “Reconstructing 800 Years of Summer Temperatures in Scotland,” 10.

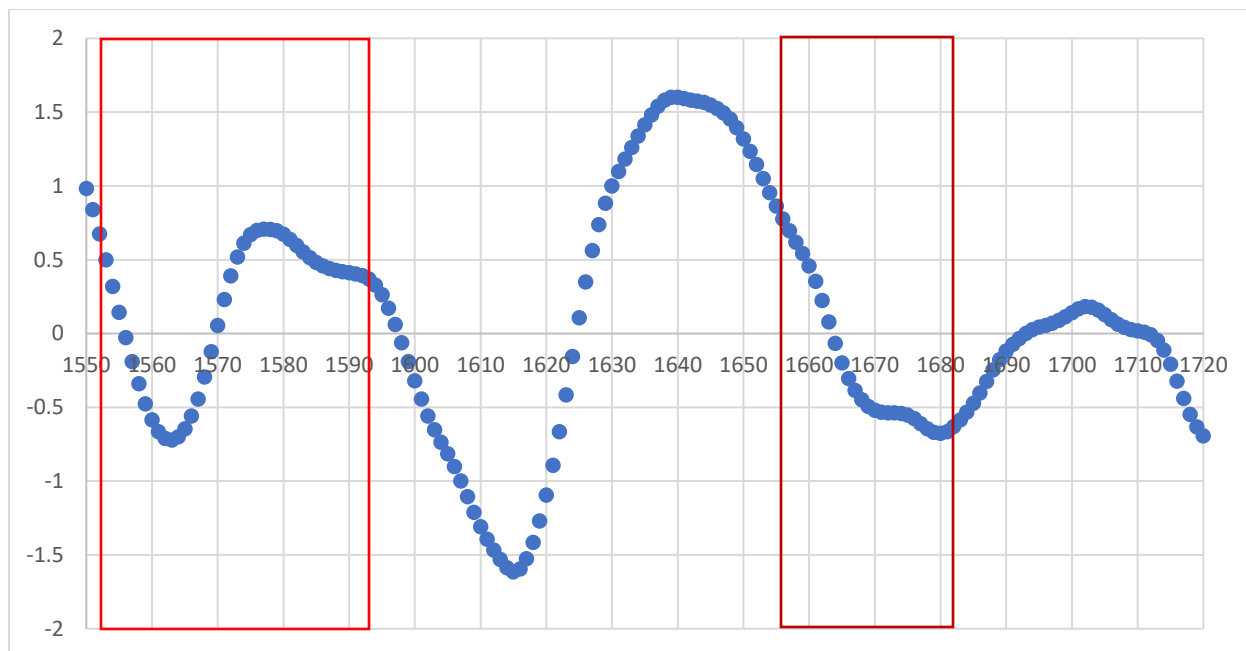


Figure 3.11. NAO during the Global Little Ice Age smoothed with a 30-year filter. Y axis measures positive and negative phases of the NAO. Red boxes identify Bohuslan periods.

Source: Trouet, et. al., “Persistent Positive North Atlantic Oscillation,” IGBP PAGES/World Data Center for Paleoclimatology, Data Contribution Series # 2009-033.

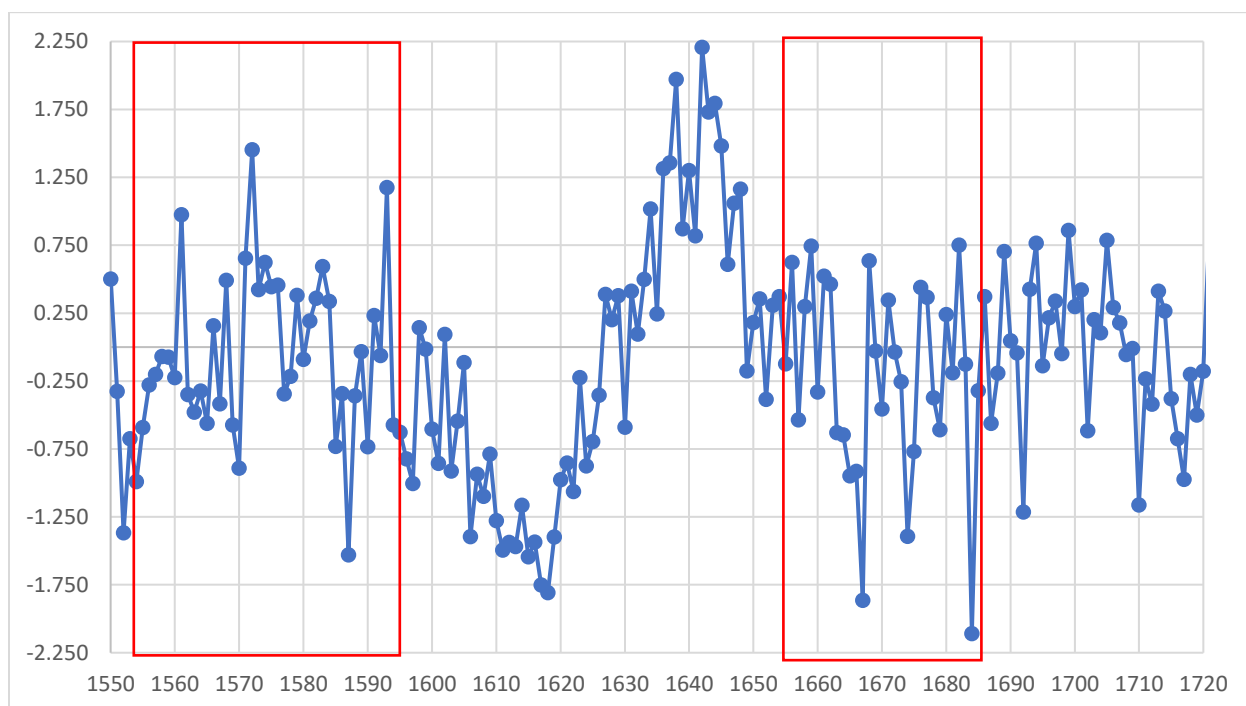


Figure 3.12 Annual reconstruction of NAO. Red boxes denote the two Bohuslan periods during the Global Little Ica Age.

Source: Data adapted from Ortega, et al., “Model-Tested North Atlantic Oscillation Reconstruction,” 71-74.

Herring was a prominent fish eaten within Sweden during the early modern period, however, much of the herring they consumed came from imports when it was not a Bohuslan period. Changes within Swedish herring production and diet can help identify Bohuslan periods. After 1590, at the conclusion of a previous Bohuslan period, Gothenburg switched to becoming a herring importer. During the 1660s, Gothenburg again became a herring exporter. Salt imports also increased during this period as well, likely for preserving herring.⁸³ Swedish documentary records also confirm that between 1661-1674 herring returned to this area as Bohuslan merchants became fish exporters rather than the importers that they had been since the last period ended in 1590.⁸⁴ Swedish historian Mats Morell demonstrated an example of this specific change (1661-1674) noting when fish became the staple source of protein, and subsequent fall, for hospital inmates in Falun, Sweden. Patients ate a total of 12kg of fish in 1659, 60 kg in 1663, 100kg by 1674, and by 1688, consumption declined to 60 kg and then back to 10 kg during 1695.⁸⁵ This rise and fall in consumption of fish mirrors the Bohuslan period likely showing a new availability of fish. The hospital budget would have been limited and local fish, especially cheap herring, would have been the cheapest option at the height of a Bohuslan cycle.⁸⁶

In addition, studies (Hoglund 1972, 1978, Cushing 1982, and Lindquist 1983) have verified that the fish caught during Bohuslan periods were in fact Atlantic herring found in Scotland, like Buchan and Bank, and not another species of herring like those found near

⁸³ Poulsen, *Dutch Herring*, 52.

⁸⁴ Poulsen, *Dutch Herring*, 50-2. Other accounts claim that this period ran from 1663-1674.

⁸⁵ Mats Morell, *Studier I den svenska livsmedelskonsumitionens historia. Hospitalhjonens livsmedelskonsumiton, 1621-1837* (Uppsala: s.l., 1989), 199-201, in Bo Poulsen, *Dutch Herring*, 53.

⁸⁶ A. Holmberg, "Perioden 1550-1850," in ed., E. Lonroth *Bohulsans Historia* (Goteborg, 1963), 228-234; Poulsen, *Dutch Herring*, 53-54.

Norway.⁸⁷ The presence of these two Scottish herring species near Bohuslan, which are typically found off the coasts of Shetland, Orkney, and northern Scotland when it is not a Bohuslan phase could help explain why catches during the first voyage of the Dutch herring season, which began near Shetland, were in decline for the entire period (1660-1700), while the second and third periods fluctuated when they caught herring species that were further down the Scottish coast, which would have likely caught more of the Downs herring. The consequences of this herring relocation were devastating to coastal communities in Shetland and Orkney.

Shetland

Seventeenth- and eighteenth-century travel accounts frequently provided information for many who would never travel to more remote locales. In Scotland, these accounts also depicted its own outer isles including Shetland and Orkney. These travel accounts as well as personal narratives and government records also identify the importance of Dutch trade and the effects of the declining fishing industry and trade initiated by a changing climate. Prior to the decline of the North Sea herring fishing industry in the area, Robert Monteith published an account of Shetland in 1633. Monteith's account provides a clear picture of just how important herring fishing was to people living on Shetland's many islands. For instance, Monteith depicted most of the region as unsuited for farming, with a few exceptions on parts of the mainland.⁸⁸ Islanders utilized much

⁸⁷ See H. Hoglund, "On the Bohuslan herring during the great herring fishery period in the eighteenth century," Institute of Marine Research, Lysekil, Series Biology, Report No. 20 (1972); A. Lindquist, "Herring and sprat: fishery independent variations in abundance," in *Proceedings of the expert consultation to examine changes in abundance and species composition of neritic fish resources*, FAO Fisheries Report, 291, (1983), 813–821; D. H. Cushing, *Climate and Fisheries* (London: Academic Press, 1982).

⁸⁸ Robert Monteith and Robert Sibbald, *The Description of the Isles of Orknay and Zetland.: With the Mapps [Sic] of Them, Done from the Accurat [Sic] Observation of the Most Learned Who Lived in These Isles* (Edinburgh: Printed by Mr. Andrew Symson, 1711 [1633]), 4-8, 12-13. Other isles were listed in this account but they are considered part of Orkney, which helps illustrate an early trading connection with Shetland and Orkney.

of the islands for pasturage, if they could, and dug peat for local use, but a substantial portion of the land was ill suited for intensive economic use as it consisted of “mountains, moors, heaths, marshes [and] pools.”⁸⁹ Fishing itself and the trade and income that fishing brought in was vital for Shetlanders. Even in 1633, Monteith made it clear that Shetland relied upon Orkney and the Scottish mainland for corn, but that system worked well enough.⁹⁰ John Smith’s 1662 work *The Trade and Fishing of Great Britain Displayed with a Description of the Islands of Orkney and Shotland* [sic] provided a similar account of Shetland fishing, claiming that herring were caught off the southern coast of Shetland by Hollanders.⁹¹ More importantly, Smith argued that 4/5 of the islands’ trade was carried out through merchants that were not British, but from other North Seas coastal communities like the Netherlands and much of Hanseatic League, which meant that up to 4/5 of the Shetland and Orkney trade could potentially disappear without herring, signifying the importance of a larger North Seas World to Shetland and Orkney.⁹²

An account from Shetland in 1662 recorded by the Scottish Privy Council demonstrates how dependent the people in Shetland were on outside suppliers within the North Sea herring trade economy. During the Scottish Parliament’s attempt to ban Dutch ships from the Shetland Isles, the account claimed that Shetland was so “barren and infertill [sic]” that the inhabitants were barely able to have enough to subsist for a quarter of the year on their own. The author of this account, who was clearly against the closure of the islands to the Dutch, claimed that “the

⁸⁹ Monteith, *Description of the Isles of Orknay and Zetland*, 12.

⁹⁰ Monteith, *Description of the Isles of Orknay and Zetland*, 12.

⁹¹ John Smith, *The Trade and Fishing of Great Britain Displayed with a Description of the Islands of Orkney and Shotland* (London: printed by William Godbid, 1662), 3.

⁹² Smith, *The Trade and Fishing of Great Britain*, 4, 5-6.

poor inhabitants of these isles will undoubtedly be ruined” and many would die from want, forcing the wholesale emigration without the act’s reversal.⁹³

This premonition was fulfilled in the updated edition of Shetland written by Monteith’s son in 1700 and published in 1711, and also in John Brand’s account of Shetland from 1701. Both accounts focused on more recent events in Shetland (1660s onward) and portrayed a much bleaker image of life. For instance, Shetland was now depicted as “heath covered”, a “quagmire of watery ground”, and a “mossy and mountainous desert.”⁹⁴ The land was “bad” for farming, and required abundant labor to make most of the land usable for crops or pasturage.⁹⁵ Brand, a Scottish minister who visited the islands in 1701, was even skeptical that any of the “bad” land could be converted into more usable land because, he claimed, it lacked enough people to do so.⁹⁶ To make matters more difficult, the “poor” Shetland climate delayed the harvest for two months compared to the mainland. Cereal crops or “bread” often failed during the summer and were usually shaken or damaged by violent winds or spoiled when sea water “blowen in upon it.” Because of this, Shetlanders often went four to five months on a fish heavy diet.⁹⁷ Even with all of the challenges during the planting seasons, the winter was worse, as the strong winds and

⁹³ Scotland, Privy Council, *The Register of the Privy Council of Scotland Ser. 3 Vol 1 1661-1664*, 182; For similar complaint in Orkney see [O]rkney [A]rchives, SC11/5/1662/113, Act contra Patrick cragie and for poor people 1662.

⁹⁴ John Brand, and George Mosman, *A Brief Description of Orkney, Zetland, Pightland-Firth & Caithness: Wherein, After a Short Journal of the Author's Voyage Thither, These Northern Places Are First More Generally Described; Then a Particular View Is Given of the Several Isles Thereto Belonging ; Together with an Account of What Is Most Rare and Remarkable Therein: with the Author's Observes Thereupon* (Edinburgh: Printed by George Mosman, 1701) found in John Pinkerton, *A General Collection of the Best and Most Interesting Voyages* (London: 1809), 768-769.

⁹⁵ Brand, *A Brief Description*, 765-767.

⁹⁶ Brand, *A Brief Description*, 765, 769.

⁹⁷ Brand, *A Brief Description*, 768, 770. At times, they would rely on a drink called “bland”. A mixture of milk and water or the equivalent to today’s skim milk.; Monteith, *Description of the Isles of Orkney and Zetland*, 13,18.

weather typically prevented ships from departing from October to April or May.⁹⁸ For example, in December of 1687, a ship owned by Mr. George Scott of Orkney was lying off the coast of Shetland in the North Sea waiting for the tide and a good wind to make port. “Bad weather” carried the ship south from the coast of Shetland all the way to the coast of Holland and forced Scott to delay his ship’s registration until the summer because of the hazard of Shetland storms.⁹⁹ When describing the poor winter conditions, many accounts provided a humorous note of a sailor arriving ashore in May 1689 and telling events of the overthrow of James II, five months after the fact. The islanders accused the sailor of treason and would have done worse had another ship not arrived telling the same news.

Since the land was so poor, Shetlanders put much of their effort into the fishing industry, especially with herring, which occupied most of the islanders during the summer months.¹⁰⁰ Shetland’s medieval history and seventeenth century accounts further demonstrate the interconnection between the northern Scottish isles and the North Sea economic system. Shetland and Orkney both had ties to the North Seas long before Scotland. In fact, both places remained under Norwegian control until their annexation to Scotland in the mid-fifteenth century. Despite the new Scottish rule, the connections to the North Seas remained even to the seventeenth century. In a rather backhanded compliment, Brand claimed that fishing allowed the people in Shetland to be less “rustic” or “clownish” than one might expect given their peripheral location from a Scottish point of view. This was because of their significant trade with Dutch and

⁹⁸ Brand, *A Brief Description*, 772; Monteith, *Description of the Isles of Orkney and Zetland*, 13.

⁹⁹ NRS, SRO1/32, Petition to Lords of Session by Mr. George Scott, late steward of Orkney, that his sasine of the lands of Winhous in Shetland has not been registered within 60 days because the ship taking it to Edinburgh was driven by bad weather to the coasts of Holland. Endorsed with warrant for registration. 22 Feb. 1688.

¹⁰⁰ Brand, *A Brief Description*, 765, 771.

Hanseatic merchants, who frequented their ports and brought fine goods with them. Because of this trade, many of the islanders even spoke Dutch.¹⁰¹ For much of the early modern period, there was also a strong Germanic trading connection, which was later replaced (although not completely) by the Dutch in the early seventeenth century.¹⁰²

Although this number is likely high, travel accounts claimed that a mix of over 2,000 fishing and merchant ships could sometimes be found anchored off Lerwick. Regardless of the exact number of ships, it represents the large presence that Dutch ships had near Lerwick and that they went into Lerwick and the other Shetland Isles when they needed supplies (including freshwater) and not somewhere else.¹⁰³ The importance of this trade in Shetland is shown by merchants from Hamburg, Bremen, Lubeck, and throughout the Netherlands renting out buildings during the summer fishing season to take in goods the islands produced and brought with them grains, fishing utensils, cloth, and other trade goods.¹⁰⁴ Shetland sheep were especially desired by fishing ships and merchants during the summer for victual and wool for stockings. This worked well with the island's terrain that struggled to produce much other than limited lands for pasturage. Overall though, the herring trade brought in much needed provisions, employed workers, and brought currency to the island, and because of this, the Dutch fleet itself was considered a "market."¹⁰⁵

¹⁰¹ Brand, *A Brief Description*, 766-767, 769.

¹⁰² Goodlad, *Shetland Fishing Saga*, 69-70.

¹⁰³ Brand, *A Brief Description*, 776; Martin Martin, *A Description of the Western Islands of Scotland: Containing a Full Account of Their Situation, Extent, Soils, Product, Harbours ... With a New Map of the Whole ... To Which Is Added a Brief Description of the Isles of Orkney, and Schetland* (London: Printed for Andrew Bell, 1703), 392.

¹⁰⁴ Goodlad, *Shetland Fishing Saga*, 71.

¹⁰⁵ Brand, *A Brief Description*, 798.

Without fishing, and especially herring, the economy and subsistence of Shetland collapsed during the second part of the seventeenth century. Brand included a special section in his account of Shetland about fishing because “it is the fishing only which makes this country [Shetland] any way desireable [sic], else it would be very unpleasant living there.” He goes on to say that without the fishing industry and fishing trade in Shetland “there could be no living at all” since the islands had limited fields for planting or grazing.¹⁰⁶ When times were good, “hundreds” of ships came to Shetland to resupply, but during the second part of the seventeenth century they stopped because “the fish can’t be found.”¹⁰⁷ Brand claimed that “for not above forty or fifty years since [1650 or 1660], the fishers would have taken the great fishes....”¹⁰⁸ These contemporary documentary accounts suggest that something happened to the herring and the trade in Shetland.

Since the North Sea herring industry in Shetland depended largely upon outside fishing, it is vital to examine the catch records of the Dutch to understand this collapse. Figure 3.13 shows a sharp decrease of approximately 30,000 tons in the total amount of herring produced in the Netherlands beginning in the late 1650s and then another decline to around 10,000 tons a few years later. Throughout the entire period 1660-1710, the total amount of herring caught by Dutch fleets never came near the amount produced prior to the peak of the 1650s.¹⁰⁹ Poulsen’s reconstructed fishing numbers corroborate Brand’s qualitative account published in 1700, which claimed that “the fishing here [in Shetland] is much decayed by what it was.... for now neither is

¹⁰⁶ Brand, *A Brief Description*, 798.

¹⁰⁷ Brand, *A Brief Description*, 797-798.

¹⁰⁸ Brand, *A Brief Description*, 795-796; Martin, *A Description of the Western Islands of Scotland*, 384.

¹⁰⁹ Poulsen, *Dutch Herring*, 44.

there such a great number of fishes taken, nor so easily can they be had.”¹¹⁰ To make matters worse, Shetland had no rivers or lochs to catch inland fish like salmon to help offset declining North Sea fishing. The alternative was to piece together some type of craft to sail further out from shore, which was tried, but storms made this too dangerous for the type of craft that Scots were producing and since Shetland did not possess much of the raw materials for building these ships, in addition to the technological know-how for building a Dutch style herring bus, it was thought not worth the time or expense in the end.¹¹¹ Monteith (1711) also supported these accounts positing that fishing was not what it used to be and that people had to travel further from shore to catch fish and struggled against the weather. Although struggling against the weather to fish at this latitude was not unique it had not been mentioned in this account before this period.¹¹²

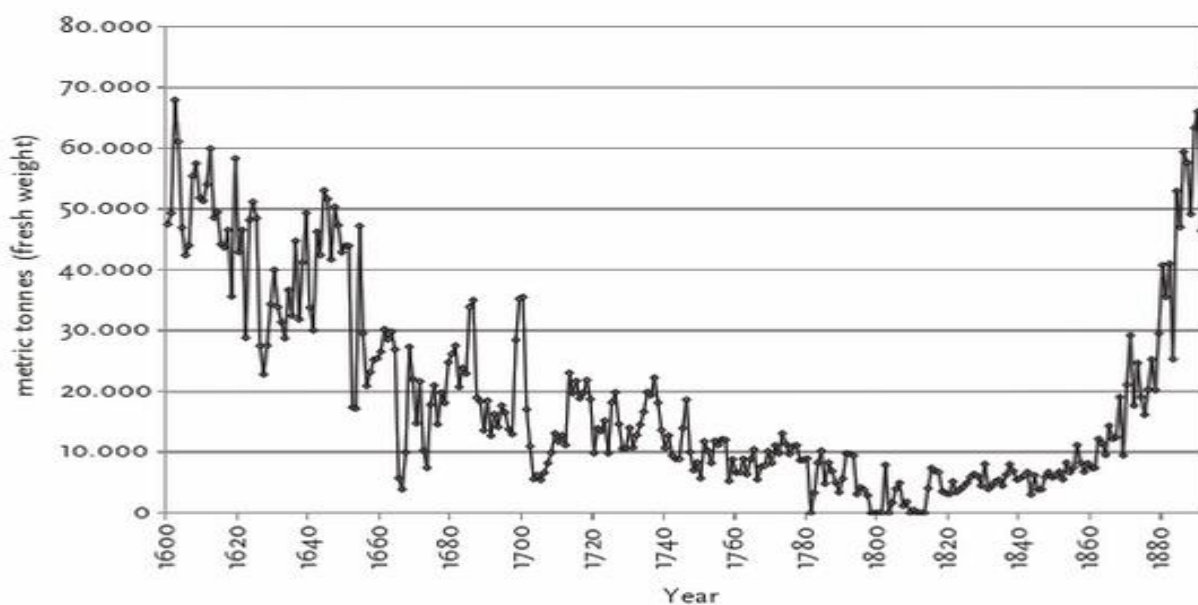


Figure 3.13 Total estimated production of herring in the Netherlands 1600-1892.

Source: Poulsen, *Dutch Herring*, 44. Reproduced by permission Amsterdam University Press.

¹¹⁰ Brand, *A Brief Description*, 795.

¹¹¹ Brand, *A Brief Description*, 796; Robert Sibbald, *A Collection of Several Treatises in Folio, Concerning Scotland, As It Was of Old, and Also in Later Times, Tractatus Varii ad Scotiae* (Edinburgh: Hamilton and Balfour and Andrea Symson, 1739 [1711]), 5, 9, 11, 39.

¹¹² Monteith, *Description of the Isles of Orkney and Zetland*, 23.

Further signs of a collapse in the herring trade and Shetland economy existed in additional sources. As of 1700, this included over fifty recently abandoned chapels and their corresponding settlements throughout Shetland.¹¹³ Perhaps the reason for some of this was brought about by disease, which “goes through them [Shetlanders] like a plague.” Part of this could have been the result of poor nutrition through a lack of trade as Shetlanders had recently dealt with scurvy, a type of leprosy that was called “bastard scurvy”, and smallpox, which had killed at least a third of the population and was said to have completely killed off the human population of Fair Isle (approximately twelve families).¹¹⁴ While Brand did not state when this happened, the 1670s saw a smallpox outbreak in the British Isles. Additionally, the land for miles in either direction outside of Lerwick was void of people, sheep, or structures.¹¹⁵ Circa 1700, Lerwick itself comprised only 200-300 families, although this was a stark improvement from 30 years previous when it had only 4 remaining houses. Scalloway, which Monteith (1711) cited as a major town, but hardly inhabited, had only 100 people remaining.¹¹⁶ The castle of Scalloway, pictured in figure 3.14, one of the largest and more elaborate structures in Scalloway, was built by Robert Stewart in 1600 and resembled typical estate and manor homes on the mainland. It had begun to fall into disrepair by the end of the seventeenth century. Brand stated that “the slates have for the most part fallen from the roof and are daily falling with every storm so that the timber...is beginning to rot.”¹¹⁷ Another sign of financial decline within Shetland.

¹¹³ Brand, *A Brief Description*, 786.

¹¹⁴ Brand, *A Brief Description*, 774, 768.

¹¹⁵ Brand, *A Brief Description*, 765, 769.

¹¹⁶ Monteith, *Description of the Isles of Orkney and Zetland*, 13-14; Brand, *A Brief Description*, 767; Martin, *A Description of the Western Islands of Scotland*, 384.

¹¹⁷ Brand, *A Brief Description*, 778.

Although the population began to grow in some places by the publication of some of these accounts at the beginning of the eighteenth century, the authors claimed that it was hard to find many Shetlanders whose grandparents were from Shetland, which supports a decline in the 1660s and 1670s. Archival records denote an increase of “poor” in Shetland and Orkney during this time.¹¹⁸ Brand claimed that this recent population increase was from people leaving Orkney and much of northern Scotland like Caithness, Sutherland, and Buchan, likely because of the famine from the Scottish Ill Years that chapter five discusses. Brand provided no reason for this but given the poor conditions in those places it is likely that agricultural laborers could have arrived in Shetland seeking work. It probably helped that rents in Shetland were only two-thirds of what they were in Orkney, despite there being more land available, though it was poorer quality.¹¹⁹

Much of the reason for this decay was because of Shetland’s economy. In the seventeenth century, Shetland was, in many ways, a single crop economy, based on the summer crop of herring. It relied upon fishing to sustain its economy and to maintain the population’s subsistence through direct harvesting and external trade with other locales in the North Seas World. As the documentary sources demonstrate, when the herring moved and the fishing industry collapsed, so too did the economy of Shetland. The effects of this collapse were far reaching and affected more than just Shetland.

¹¹⁸ [O]rkney [L]ibrary [A]rchives, SC11.5, inhibitions and other land fees; OLA, OCR, 14/91; OLA, D46/1/7,—Proclamation by David Forbes, clerk to Kirkwall Town Council. In 1674 there was a decision by the Kirkwall Town Council to “license” the town’s poor by issuing them a badge to rid the town of the increasing number of vagabonds and beggars. This was the result of the declining herring trade and from the poor harvests that year.

¹¹⁹ Brand, *A Brief Description*, 769.



Figure 3.14. Castle of Scalloway. Photograph by the author.

Orkney

Located just off the northeastern coast of Scotland are the Orkney Isles. While many of the inhabitants of Orkney were more heavily involved in agriculture than fishing by the second half of the seventeenth century, Orkney's economy still relied upon the North Seas herring trade. In much the same way as Shetland was a single crop (fish) economy, Orkney relied solely upon agricultural trade.¹²⁰ Specie and more typically trade from Shetland and the North Seas market fueled the Orkney economy.¹²¹ More importantly the source of that trade came from the Dutch and other merchants in Shetland through the herring trade. Removing this income in Orkney

¹²⁰ Brand, *A Brief Description*, 769; See also Goodlad, *Shetland Fishing Saga*, 75.

¹²¹ Brand, *A Brief Description*, 769.

caused problems, when coupled with agricultural failure, it caused an epidemic (1690s). To see the full effects of this brought about by the decline of the herring trade we must now turn to Orkney.

Much like in Shetland, our most complete depictions covering life in Orkney in the second part of the seventeenth century come to us from travel accounts and personal narratives. Commentators described Orkney as colder in summer and a little warmer in winter than the Scottish mainland with few periods of great frost or snow.¹²² Unlike Shetland, Orkney had much more land that was better suited for planting and grazing. The cooler climate, “weak soil”, and brinish blasts that the islands were exposed to favored oats and salt-resistant barley over other cereals.¹²³ Because of this, wheat was scarce and the oats and barley that matured were a darker color and less productive than what was typical in Scotland or the Baltic.¹²⁴ Nevertheless, the ground was more fertile than it appeared because of the use of a “seaware” or sea waste manure, and a limited selection of cold weather plants thrived including turnips, cabbage, carrots, parsnips, artichoke, and skirret, a cold-resistant root vegetable from the parsley family widely grown in the middle ages, which also thrives in sandy soils.¹²⁵ This production supported a common practice of sending victual to Shetland and even occasionally on to Leith.¹²⁶ Prior to the dearth of the 1690s, and much like in Monteith’s account of Shetland in the 1630s, James

¹²² Brand, *A Brief Description*, 742.

¹²³ Brand, *A Brief Description*, 742.

¹²⁴ James Wallace, *A Description of the Isles of Orkney; by Master James Wallace, Late Minister of Kirkwall, Published After His Death by His Son. To Which Is Added, An Essay Concerning the Thule of the Ancients* (Edinburgh: s.n., 1699 [1693]), 4-5; Brand, *A Brief Description*, 742, 756-757.

¹²⁵ Wallace, *A Description of the Isles of Orkney*, 15, 34-35; Brand, *A Brief Description*, 745; NRS, GD31/128, Disposition by Margaret Buxtoune, Lady of Sound, and relict of Arthur Buchanan of Sound in favour of William McKenzie, merchant, and son of Murdoch, bishop of Orkney, 1 Jul. 1692.

¹²⁶ Brand, *A Brief Description*, 736, 743.

Wallace's account of Orkney had portrayed it as having just enough crops and goods for the inhabitants to sustain themselves, especially through trade.

All the travel accounts made it clear that agriculture and trade were the most important industries in Orkney. Wallace identified 26 inhabited islands with most suited solely for pasturage typically of cows, that were smaller than on the Scottish mainland, sheep, and goats, with cheese and butter being two common items included as rental payments. The islands best suited for grains were found in the south and west, close to the Scottish mainland. Surprisingly though, given the importance of agriculture, these travel accounts posited that most of the islands were ill suited for grains, were rocky, mossy, or sandy, and there were several reports of flooding and erosion because it rained more intensely.¹²⁷ Other accounts commented on the increased precipitation claiming that people and animals were sinking into peat more frequently.¹²⁸

Despite this, it seems that Orkney's agricultural system worked reasonably well until the end of the seventeenth century as trade usually thrived during much of the seventeenth century. Orkney merchants took part in a larger North Seas trade exporting butter, tallow, hides, barley, malt, oatmeal, fish, salted beef, white salt, stockings, wool, hams, pens, and feathers from waterfowl to Shetland, the Scottish mainland, to Bergen (in eastern Norway), and to the Dutch who had a significant presence in Orkney tied to the herring fishing.¹²⁹ The sea was also important to the Orkney Islanders, but by the end of the seventeenth century fishing by the island's inhabitants was uncommon. Brand and local tradition insisted that it declined after the Battle of Kilsyth in 1645 because many of the local fishermen had died in the violence of the

¹²⁷ Wallace, *A Description of the Isles of Orkney*, 8, 35; Goodlad, *Shetland Fishing Saga*, 1, 8.

¹²⁸ Martin, *A Description of the Western Islands of Scotland*, 370-73.

¹²⁹ Wallace, *A Description of the Isles of Orkney*, 14, 37; [S]hetland [A]rchive, D14/11/19; SA, D14/6/7, Papers of Peter Winchester, merchant in Kirkwall; SA, D2 6/10 large bundle of miscellaneous papers 1632-1838; SA, K1/25/1 Court book [copy] 1672-1703.

1640s; the ruins of fishing houses and camps could still be seen when Brand wrote his account (1701).¹³⁰ While this event may have caused a brief decline in fishing shortly thereafter, it does not fully explain the decline up to the 1700s. It is more likely that the Battle of Kilsyth temporarily decreased the available fishermen and when the herring left in the 1660s it ruined what little fishing industry remained. By the second part of the seventeenth century, many islanders had switched full time to agriculture overfishing. Despite this transition, Orkney's inhabitants had found a fragile balance depending on the success of the North Seas herring trade markets for its goods.

Much like in Shetland, the people of Orkney petitioned the Scottish Privy Council because of the ban on foreign traders in 1662, claiming that they were experiencing many difficulties because of this act.¹³¹ There were similar petitions to the Scottish Parliament where they asked to be "releevd and redressed of their insupportable burdens and sufferings." A document from 1663 stated that times have been difficult in Orkney during the last 15 years in part because of the raids that occurred during the wars, and because of "the decay of their trade... the not [?] swimming of the fishes on their coast as formerly" and "the extraordinary blasting of their lands murrayni [?] of their cattle tho these last years." The petition further stated that all the islands in Shetland and Orkney were becoming depopulated and discussed the difficulty the islanders had in paying their rents because of the difficulty of life in Orkney.¹³²

¹³⁰ Brand, *A Brief Description*, 743.

¹³¹ NRS, SC11/5/1662/113, Act contra Patrick cragrie and for poor people 1662.

¹³² OLA, CO1/1/36r, Petition to parliament by the inhabitants of Orkney and Zetland, reciting the circumstances which have led to their present distress Jul. 1663; OLA, D16/2/16, transcripts 1663 petition to parliament for the reduction of burdens (taxes) on Orkney and Shetland.

Scroll lists of money received by the excise of Kirkwall support the previous texts with listed deficiencies in 1663-1664.¹³³

A charter between Arthur Nicolson, a merchant in Lerwick, and other merchants in Edinburgh also ties the money from Shetland and Orkney together, along with the larger North Seas World. In this charter, victual from Kirkwall was sold in Shetland. Nicolson then used the income from this to purchase goods in Norway.¹³⁴ Similar accounts out of Orkney highlight the trading connections between Orkney and Shetland. For example, an account from Tankerness (Orkney mainland) discussed how the crop of 1689 was supposed to be traded to Shetland, specifically to Shetland merchants, but most of this crop was destroyed, damaged, or left fallow and was unable to be traded.¹³⁵ Wallace's 1693 account of Orkney noted that "mines" on the island were inactive or not "improved" because of "poverty" in Shetland. Although it is unclear what type of mine Wallace referred to, he was at least demonstrating that Shetland trade helped play an important role in the economic and industrial development of Orkney.¹³⁶

The problems in Orkney worsened over the last few decades of the seventeenth century, as declines in agricultural yields from poorer growing conditions and diminishing trade opportunities from the North Seas herring industry took their toll. Increasing numbers of rested, or unplanted lands appeared in excise records as did larger arrears of rents. In 1689, reports from Orkney and Shetland described "a considerable quantity of resting by the vassals by the extreme dearth and scarcity this year."¹³⁷ Because of this, Robert Elphinstone of Lopness, a minister in

¹³³ OLA, D2/50/20, Scroll lists of money received by John Covingtrie from the excise of Kirkwall... listing deficiencies as well 1663-1664.

¹³⁴ NRS, RH15/93/15/34, Papers relating to Shetland trading venture 1701-1702.

¹³⁵ OLA, D24/8/273.

¹³⁶ Wallace, *A Description of the Isles of Orkney*, 48, 66, 81.

¹³⁷ NRS, E41/20/1, Papers concerning Colonel Robert Elphinstone of Lopness.

Orkney and Shetland, denoted how people there were two years behind paying their rents because of a combination of bad years and then good years where there was too much grain and the farmers could not sell their crops at a decent price so they fell even further in debt.¹³⁸ A vicious cycle which repeated itself much more frequently during the second half of the seventeenth century. By the 1690s, some inhabitants were “redacted to great strains...not getting meal, barley, or the like.”¹³⁹ Others were unable to pay their rents and were thrown off the land, which remained “waste and lee.”¹⁴⁰

John Coventry, a Baillie in Kirkwall, for the council and community of the burgh, wrote in 1703 that Kirkwall and Orkney more generally had faced challenging times. Coventry felt the £72 monthly tax they usually paid to the crown was already too much and this was when they had “sum small tread [trade]... with Norrowey, Shetland, and Leith. [but] these several years past we have had little or no tread [trade] at all.” Because of this, they are in “considerable arrears” and that they cannot subsist and pay the tax.¹⁴¹ Coventry’s account identified the bleak choices for many in Orkney and Shetland, pay the tax and starve or fall in arrears from which you could never emerge.

Brand identified more details of financial and social distress. He depicted Kirkwall, Orkney’s major town, as “decayed” like many of the other towns of Orkney. Brand cited a lack of trade and the declining number of inhabitants as the cause of this, which ties this into the

¹³⁸ NRS, E41/20/24, Scroll account of rests of treasury account fitted in Aug 1688 with abbreviate of account current to 24 Jan. 1689.

¹³⁹ Brand, *A Brief Description*, 746; Martin, *A Description of the Western Islands of Scotland*, 360.

¹⁴⁰ Brand, *A Brief Description*, 746-747; Martin, *A Description of the Western Islands of Scotland*, 360.

¹⁴¹ OLA, D2/7/6, Unto the much honored, the general convention of the Royal Burrows. The petition of John Coventry, one of the present Baillies of Kirkwall in Orkney, for himself, and in name of the council and community of the said burgh.

decline in Shetland.¹⁴² At St. Magnus Cathedral in Kirkwall there is an increase in the number of graves and memorials from the second part of the seventeenth century.¹⁴³ In addition, Brand described many of the parishes and larger buildings throughout the islands as decayed. This decay was recent as Brand posited that Robert Stewart's house, along with other buildings, decayed within the last 20 years (around 1680).¹⁴⁴ This narrative of decay was consistent for much of the outer islands as well.¹⁴⁵

Herring connected many communities within the North Seas World. The major problem was that herring fishing, like many fishing industries, followed a boom and bust cycle. Its success allowed coastal communities to flourish, however, its collapse left many struggling to survive and reeling for answers. By the early part of the eighteenth century, many in Orkney and Shetland looked for any possibility that could offer them help and improve their economic standing. Herring and the Union debates offered one possible solution to the economic decline in these areas.

¹⁴² Brand, *A Brief Description*, 748.

¹⁴³ Not only are the number of burials increased, but the tombs and effigies are also elaborately decorated. This demonstrates that there were families in Orkney that had a fair amount of wealth during this period, but there was also something that killed more people than previous.

¹⁴⁴ Brand, *A Brief Description*, 748.

¹⁴⁵ Brand, *A Brief Description*, 748.

CHAPTER 4

Scotland's Mercantile Ecology: Salt, Coal, and Herring in Seventeenth Century Scotland

In 1703, Daniel Hamilton, the salt and coalmaster for several of the Hamilton family's salt and coal mines along the Firth of Forth, lamented the missed opportunities for both the Scottish salt and coal industry. Hamilton wished that the Dutch would "be obliged [sic] to allow the use of our [Scottish and Hamilton] salt" within their herring fishing industry, because if they did, "it would contribute very much for the interest of coal and saltmasters in Britain." He thought it unfair that the Dutch utilized Scottish coal but did not then purchase Scottish salt to preserve their herring catches.¹ Hamilton's statement highlights the key points of this chapter. First, there was a close connection between the salt industry and herring, and to effectively trade in herring, one needed access to high-quality salt, which Hamilton suggested that Scotland did not have. Second, there was also a close connection between salt and coal during the seventeenth century, with the latter providing the main energy to produce the former from sea water. Third, the interests involved in these industries, herring, salt, and coal, while interconnected, could have differing points of view about what it meant to be successful and what was best for their industry, despite their close connections. Finally, by referencing Scottish salt and coal, but then suggesting that it would be good for all of Britain, Hamilton foreshadowed the importance of salt and coal in the Union arguments by suggesting that what might be good for Scotland, would also be good for all of Britain.

The previous chapter demonstrated the centrality of herring fishing and the herring trade to the North Seas World during much of the Global Little Ice Age, especially at the end of the

¹ NRS, GD406/1/5009, Daniel Hamilton, Kinneil, to the duke of Hamilton, 4 Jan. 1703.

seventeenth century. While herring was the most mentioned natural resource in Scottish trade discourses, salt and coal were vitally important in the herring industry and trade, as these resources were necessary to produce salt and preserve fish and meat. Part of the reason for the growth of the North Sea herring trade was the increase in the availability and control of salt by North Sea countries during the early modern period. Like herring, Scottish salt production and the salt trade took place within in a larger North Seas economy.

In much the same way that the herring trade relied upon salt, the Scottish salt industry relied upon coal. Even though fossil fuel-based industrialization in Britain was still decades away, it is not inaccurate to speak of an emergent Scottish salt-coal complex, which was a clear precursor to what Lewis Mumford called the “Paleotechnic” coal-iron complex that emerged in the late eighteenth century.² The Scottish salt-coal complex sees salt as necessary to preserve fish and meat, but salt cannot be manufactured in Scotland’s cool humid climate without a heat source. This had important economic and ecological feedbacks that began opening the way for industrialization. Scottish coal was generally dug in shallow, easily accessible mines near the coast, located next to salt production. The more frequently and efficiently one mined coal, the higher the potential output was for Scottish salt, and the increased demand for salt, in turn, required more coal and more efficient ways to obtain coal. Both salt and coal needed iron implements for mining or boiling processes and this would no doubt fit into Mumford’s model; however, a large portion of the iron utilized for the early salt industry was imported into

² For more information of the coal-iron complex see, Lewis Mumford. *Technics and Civilization* (New York: Harcourt, Brace & World, [1934] 2010), 156-167; Timothy W. Luke, *Social Theory and Modernity: Critique, Dissent, and Revolution* (Newbury Park, Calif: Sage, 1990), 37-8; See also John Hatcher, *The History of the British Coal Industry Volume 1 Before 1700* (Oxford: Clarendon Press, 1984), 97-111; E. A. Wrigley, *Energy and the English Industrial Revolution* (Cambridge and New York: Cambridge University Press, 2010).

Scotland, generally from Sweden. While Swedish iron is important in portraying the larger connections of Scotland within the North Seas World, it was not one of Scotland's natural resources brought up during Union voting, and, so iron will not be examined in the same detail, though its significance will still be explored in the context of the North Seas economy.

Mumford's coal-iron complex ended by developing a new civilization, and, similarly, the salt-coal complex saw a new 'civilization' or at least played a significant role in creating a new 'British' nation through the union negotiations.³ The relationship between these three commodities, salt, coal, and herring, helps illustrate the different positions that a changing environment, both climatically and geopolitically, had on Scottish viewpoints of trade and industry, the Scottish economy, and ultimately union.

This chapter argues that the salt, coal, and herring industries were interconnected during the seventeenth century. However, despite the interconnection between these industries, the relative profitability of the salt and coal industries was drastically different by the turn of the eighteenth century and led to differing opinions on union related to these closely related activities. Scottish salt producers had protection from outside competition with a monopoly on the Scottish salt market, whereas the Scottish coal industry struggled to get by, and contemporaries argued that Scottish coal, or at least coal that was easily accessible, was running out. The chapter ends by exploring how these two industries, and their differing profitability played a key role in the decisions to vote for or against union in the Scottish Parliament that the last chapter discusses.

³ Mumford, *Technics and Civilization*, 156.

Creating a North Seas Salt Market

By the late medieval period and continuing into the early modern period, salt and its significance in European trade expanded greatly. Not only was salt a welcome spice added into meals, but it served as a preservative for fish, meat, butter, and cheese. By the thirteenth century, Venetian and Genoese merchants controlled much of the European salt trade. Although both places on the Italian Peninsula produced some salt of their own, they were not major salt producers, but they instead gained control of the salt trade by becoming major salt redistributors. For instance, Venice, utilizing mercantilist practices, paid merchants subsidies for salt imports, which provided Venetian merchants money for trade in other spices and goods and only increased the value and power of Venetian trade.⁴ By the sixteenth century, control of the salt trade had shifted to the Iberian Peninsula and the North Sea. Part of this was through conflict and the growing power of the Spanish empire but it was also the result of market expansion, especially into the North Seas markets. As the North Seas World became more dominant as an economic power, more salt was needed to support a growing fishing industry as this period saw the rise of a North Atlantic fishing revolution.⁵ With the importance of the fishing industry, the salt trade became integrated into the larger Atlantic trade, which utilized salt as a preservative. Up until their wars for independence at the end of the sixteenth century, the Netherlands were a possession of the Spanish monarch, which initially provided the Netherlands with access to much of the Mediterranean salt market.⁶ This meant that they had access to the best quality salt for the preservation of herring.

⁴ Mark Kurlansky, *Salt A World History* (New York: Walker and Company, 2002), 84-5, 100-5.

⁵ Holm, "The North Atlantic Fish Revolution (Ca. AD 1500)," *Quaternary Research* n.d., (2019): 1-15.

⁶ Jonathan Israel, *Dutch Primacy in World Trade 1585-1740* (New York: Oxford University Press), 18.

Salt had a long history as a preservative, even for fish, but by the end of the fourteenth century, Zeeland fishermen in the Netherlands created a new way of preserving herring. This new method had fishermen immediately gut herring and then preserved with a brinish salt, or a salt and water mixture with a high salt concentration, creating a salted or pickled herring. It extended caught herring's preservation life, as the previous method required herring to be dried out first, which expedited its deterioration.⁷ This new method also increased the profitability of both salt and herring. Because of this, by the sixteenth century, salt became a valued and highly coveted commodity in Scotland and in the North Seas economy, thanks in part to the rise of the herring trade. The cod trade also played an important role, as it utilized large amounts of salt to preserve Atlantic caught cod. Although by the seventeenth century, French and English mariners were the major exporters of salted cod, which went to the Mediterranean.

For much of the sixteenth and half of the seventeenth century, the Dutch had a strong hold on the salt trade thanks in part to their successful efforts in shipping large amounts of goods between the Baltic and the Mediterranean and their ability to refine lower quality salt.⁸ Dutch trade ships were designed to carry large amounts of goods, and unlike most of their European counterparts, they were not designed to include large crews or armaments but instead focused solely on shipping goods.⁹ The increased access to and larger control of the Baltic and

⁷ Debate surrounds the origins of this method, but many historians list a Wilhelm Beuckelzon or Beucks, Beukelsz, or Belkinson as the creator of this method. While someone bearing this name, in whatever form may have created this method, it is just as likely that this method was around for some time and only became utilized on a larger scale during the fourteenth century. See Kurlansky, *Salt*, 131-32; John Mitchell, *The Herring, Its Natural History and National Importance* (Edinburgh: Edmonston and Douglas, 1864), 133-36; John Rawson Elde, *The Royal Fishery Companies of the Seventeenth Century* (Glasgow: John Maclehose and Sons), 2-4.

⁸ Israel, *Dutch Primacy in World Trade*, 19-22; Jan de Vries, and Ad van der Woude, *The First Modern Economy: Success, Failure, and Perseverance of the Dutch Economy, 1500-1815* (Cambridge and New York: Cambridge University Press, 2010), 374-75.

⁹ Israel, *Dutch Primacy in World Trade*, 20-1.

Mediterranean trade, which included salt, allowed for a larger expansion of the Dutch herring trade in the sixteenth century, which continued into the early parts of the seventeenth century. The Dutch produced their own salt by heating sea water with a heat source, usually peat and wood, but the amount they could produce was insufficient, especially for the herring trade, and they relied upon shipments of higher quality salt from the Mediterranean, however, they did develop an extensive salt refining industry in the northern United Provinces.¹⁰ When warfare was not interrupting this trade, over 100 Dutch ships per year would travel from the Mediterranean to the Baltic carrying salt, and sometimes as much as a third of a Dutch ship's cargo to the Baltic included salt.¹¹ Warfare was a major disruptor to this trade, and the Dutch frequently searched for new salt locations be it in Portugal, France, Cape Verde, or even the Caribbean. It was so vital that Jonathan Israel argued that the loss of higher quality Iberian salt was part of the reason for a decline of Dutch herring catches in the beginning of the seventeenth century.¹²

The Dutch were not the only ones searching for salt during the seventeenth century, and as the previous three chapters demonstrated, trade linked many states within the North Seas economy, and salt was one of the essential commodities. When the Dutch obtained enough salt to meet their demands, they looked to trade it to other North Seas countries requiring salt. For instance, English fishermen required salt to preserve their extensive cod catches in the North Atlantic. In the early seventeenth century, 7,000 tons of salt per year were shipped by the English to Newfoundland and as K.G. Davies argued "a good supply [of salt] was the condition of

¹⁰ Jan W. de Zeeuw, "Peat and the Dutch Golden Age. The Historical Meaning of Energy-Attainability," *A.A.G. Bijdragen* 21 (1978): 3-31; Kurlansky, *Salt*, 133-35; Israel, *Dutch Primacy in World Trade*, 20-1.

¹¹ Israel, *Dutch Primacy in World Trade*, 20-1, 58.

¹² Israel, *Dutch Primacy in World Trade*, 63, 138.

success” for English fisheries.¹³ England regularly imported salt up until the 1670s when the discovery of Cheshire mined salt greatly reduced England’s need for imported salt. In addition, Norwegian fishermen and Scottish fishermen also required salt for their herring trade as did Swedish fishermen and merchants during the Bohuslan periods.¹⁴ Salt also had value outside of the fishing industry and was traded for by several cities that did not have extensive fishing communities, especially those in the former Hanseatic League, or cities in what is today’s Germany, Latvia, Lithuania, Estonia, and Poland. In Scotland, salt was used by all ranks of society and, as Christopher Whatley argued, it was the only commodity that brought Scottish peasants as consumers into market economies, prior to the mid-eighteenth century.¹⁵ While the Scottish salt industry took part in the larger North Seas economy, it had its own unique features that made it distinct from the Dutch salt industry and trade, which Scottish contemporaries, like Daniel Hamilton, often lamented.

Scottish Salt

The Scottish salt industry developed during the medieval period. It reached its zenith in the mid-sixteenth century and then declined in the nineteenth century.¹⁶ Like most other commodities in Scotland, Scottish salt and the salt industry faced its own unique environmental and geopolitical challenges. For instance, Scotland’s geographic position put it at a disadvantage in the salt trade, as the most sought-after salts, like that from the Mediterranean and the French Biscay Bay, utilized the power of the sun to evaporate sea water leaving salt behind. Scottish salt

¹³ K.G. Davies, *The North Atlantic World in the Seventeenth Century* (Minneapolis: University of Minnesota Press, 1974), 12.

¹⁴ Israel, *Dutch Primacy in the World Trade*, 48-60.

¹⁵ Christopher Whatley, *The Scottish Salt Industry 1570-1850 An Economic and Social History* (Aberdeen University Press; 1987), 1.

¹⁶ Whatley, *The Scottish Salt Industry*, 2-3.

also came from the sea, but required an additional heat source, such as coal, peat, or wood, to evaporate the water, which was unique to Britain into the seventeenth century.¹⁷ Coal was utilized most frequently to make Scottish salt, and in making one part of Scottish salt, it required six to eight parts of coal.¹⁸ Because of the pollution from the coal soot, Scottish salt often had a darker color, it had more impurities (in part because of the quicker speed at which it was produced in Scotland), it was thought to have a more bitter taste, and it was generally thought to be of poorer quality compared to the rest of European salt.¹⁹ At some locations, especially on the Firth of Forth, the salt industry influenced the names of the community such as Prestonpans and several other town names ending in ‘pans’ (salt pans), which reflected the influence of the salt industry in Scotland. Although the salt industry had spread throughout the country, even as far as the outer Hebrides, Shetland, and Orkney, by the eighteenth century 90% of the Scottish salt industry was located along the Firth of Forth.²⁰ Part of the reason for this was because of the easy access to Scottish coal that was mined along the coasts, which closely connected the two industries.

Figure 4.1 displays the high distribution of Salt pans along the Firth of Forth region during the Early Modern Period. The green shaded areas denote the shallow coal seams within the region. The close proximity between Scottish coal and salt helps explain some of the interconnections between the sea, salt, and coal during this period. In addition, figure 4.1 highlights some of the prominent towns from several salt and fishing communities. Note the

¹⁷ Whatley, *The Scottish Salt Industry*, 6.

¹⁸ Whatley, *The Scottish Salt Industry*, 6.

¹⁹ Whatley, *The Scottish Salt Industry*, 5-6.

²⁰ Whatley, *The Scottish Salt Industry*, 3-4.

towns that utilize “pans” in their name signifying the importance of salt to those communities, like Preston Pans or West Pans.



Figure 4.1. Salt Pans and Coal seams from Early Modern Scotland

Source: Map adapted from ESRI, Esri UK, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, Ian H. Adams, “The salt industry of the forth basin, *Scottish Geographical Magazine*,” 81 (1965): 153-162.

Figure 4.2 provides an illustration of the salt making process in the North Seas from the eighteenth century. Although Scottish salt pans were slightly different in appearance, this image still provides a helpful guide to the salt making process in Scotland. In the center of the image there is the salt pan (iron structure), which hangs from a wooden frame, where the coal fire heated the saltwater. Above this, a worker collected the salt that had gathered in the pan. At the bottom was the heat source, which in this case was burning coal. This was likely an idealized illustration as most salt pans in Scotland would have been smaller and less spacious as this image suggested, built from stone, roofed with turf or thatch, hot, steamy, and dark.²¹

²¹ Whatley, *The Scottish Salt Industry*, 14.

Below in figures 4.3 and 4.4 are some of the essential tools utilized in the salt making process and an illustration of a salt pan by the sea. In figure 4.3 at the bottom of the image, labeled figure 1 in the image, is the furnace for heating the saltwater. Two wicker baskets stored the salt (Figure 2), and workers utilized a skimming utensil and iron ladle (Figure 3 and Figure 6) to remove impurities. The Dutch wooden rake (Figure 4), which demonstrates the importance of the Dutch in this trade, gathered the refined salt where a wooded shovel collected it (Figure 5).²² Figure 4.4 provides an example of the Scottish salt making process, utilizing sea water. In this illustration letter A displays the abundant water source utilized in the salt pans. Yet even this illustration shows a more refined process than what was typical of Scottish salt masters in the seventeenth century. The different layers that the saltwater passed through in this illustration was more common of more refined and higher quality salts, like those utilized for preservation of herring.

These images also bring up two important materials to produce salt: coal and iron. While the importance of coal and the coal industry will be discussed later in the chapter, iron was another essential product in the production of Scottish salt. Scotland itself produced very little iron in the seventeenth century, with most iron imports coming from the North Seas market and further demonstrating the interconnections within the North Seas market economy. Although iron was not one of Scotland's main exports its importance within the North Seas trade makes a brief overview into the use of iron in the Scottish salt industry essential.

²² William Brownrigg, *The Art of Making Common Salt, as Now Practised in Most Parts of the World; with Several Improvements Proposed in that Art, For the Use of the British Dominions* (London: Printed and sold by C. Davis, in Holborn; A. Millar, in the Strand; and R. Dodsley, in Pall-mall, 1748), 294-96.



Figure 4.2. The Salt Making Process.

Source: Found in William Brownrigg, The Art of Making Common Salt, as Now Practised in Most Parts of the World; with Several Improvements Proposed in that Art, For the Use of the British Dominions, (London: Printed and sold by C. Davis, in Holborn; A. Millar, in the Strand; and R. Dodsley, in Pall-mall, 1748).

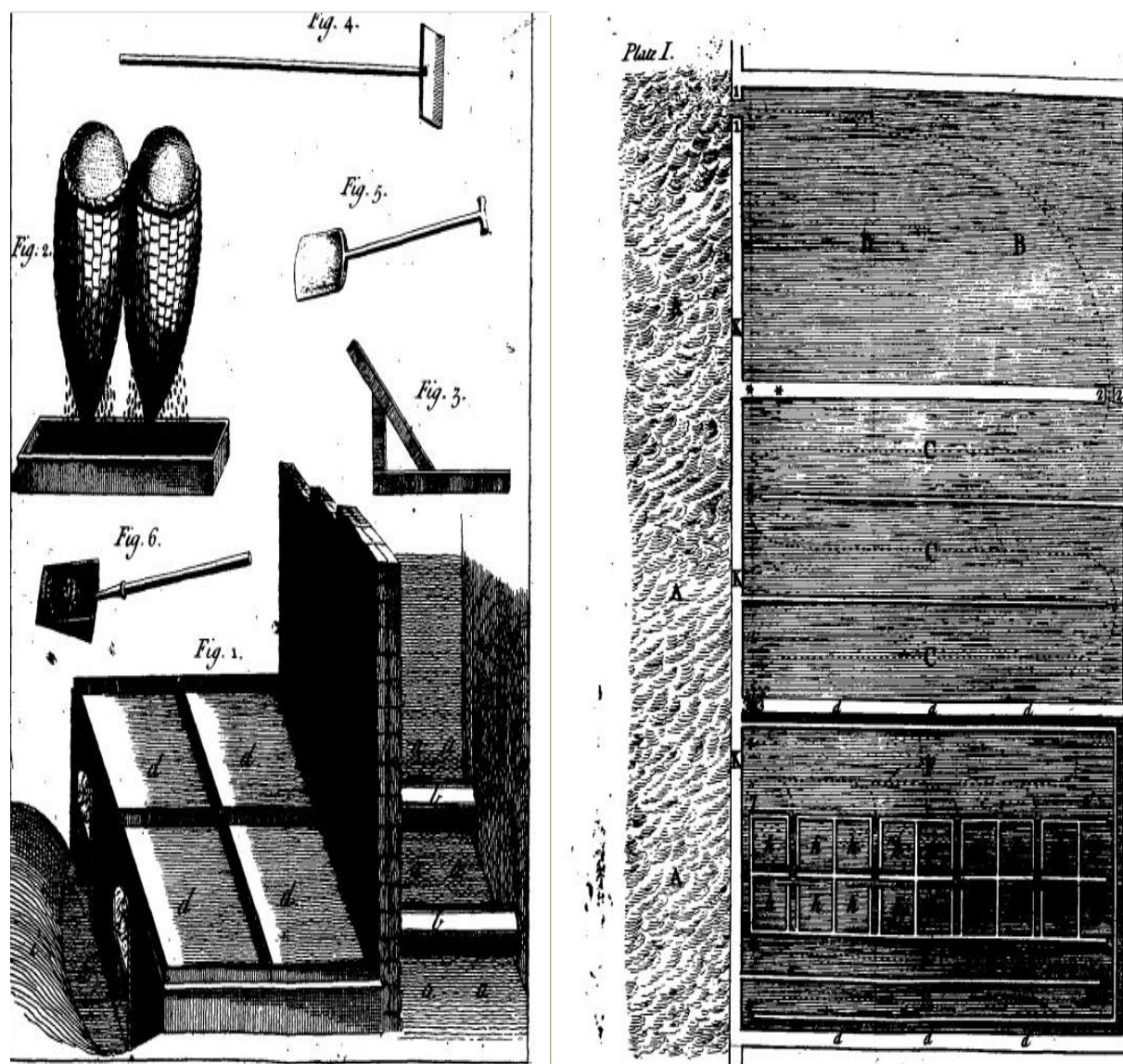


Figure 4.3. (Left) Utensils of the Salt Making Process. Figure 4.4 (Right) Image of Sea Coast Salt Pan.

Source: Brownrigg, *The Art of Making Common Salt* (1748).

Most iron entering into Scotland in the seventeenth century was Swedish, though it would occasionally enter Scotland through Dutch ports, despite its Swedish origins.²³ Roughly 1,100 tons of iron entered into Scotland each year after the Restoration with half going to the Forth and another third going to the Clyde, two of the largest salt producing areas in Scotland, though sugar refining along the Clyde likely used a greater amount of iron there by the century's end.²⁴ Scottish merchants would trade raw wool, occasionally cloth, grains, salt, herring, and coal to Sweden in exchange for iron. Not all iron imported into Scotland went for use in the salt industry as it was also utilized for making nails, spades, horseshoes, hoops, gates, munitions, and for sugar refining, but it was an essential part of the salt industry.²⁵ The figures above note the use of iron in the structure of the actual pans themselves. Iron imported into Scotland could arrive in two forms: iron ore or pig iron. Iron ore was mined in Sweden and shipped directly to Scotland, whereas pig iron was heated or smelted iron ore that had been shaped into bars for later use. For the Scottish salt industry, both forms were useful and would be molded or rather hammered into salt pans after arrival. This process needed a heat source and charcoal and Scottish coal were both utilized to shape the iron.²⁶

Several merchant accounts from the second part of the seventeenth century denote the connections between Scottish salt pans and the iron trade. The Jolly family, which developed trade connections within Sweden and had direct access to iron, were originally from Prestonpans

²³ Smout, *Scottish Trade*, 159-60.

²⁴ Smout, *Scottish Trade*, 160; S.G.E. Lythe, "Scottish Trade with the Baltic, 1550-1650," in ed. J. K. Eastham, *Economic Essays in Commemoration of the Dundee School of Economics* (Dundee: Wm. Culross & Son, 1955), 78.

²⁵ Smout, *Scottish Trade*, 158-61.

²⁶ H. R. Schubert, *History of the British Iron and Steel Industry from 450 B.C. to A.D. 1775* (London: Routledge & Kegan Paul, 1957), 230-275.

(along the Firth).²⁷ The city's name itself denotes the importance of salt and iron to that community. Another example was the Lyall family who were originally from Arbroath, arrived in Sweden in 1638, and became the third largest exporters of Swedish iron by the mid-seventeenth century.²⁸ Within Scotland, this imported iron went to various salt pans, amongst its several other uses. William Wallace of Craigie, for example, owned a coal and salt works and listed payments for iron work completed on his salt pans at Ayr in the 1690s.²⁹

These merchant accounts also demonstrate how interconnected the North Seas trade was, especially salt, coal, herring, and iron. For instance, to obtain iron Gilbert Robertson, an Edinburgh merchant in the 1690s, would ship coal to the Netherlands and herring to the Baltic in exchange for timber, flax, and iron from Stockholm. He would also trade Scottish salt and English wool on these trips as well.³⁰ Andrew Russell, a Scottish merchant in Rotterdam in the 1670s, remarked at the rise in the price of iron there because of the Anglo-Dutch War, but said that it was still being shipped in from Sweden.³¹ Russell had quite the trading connections within the North Seas market, regularly trading goods between Aberdeen, Bo'ness, Edinburgh, Glasgow, Stirling, Stockholm, London, and Bruges.³² He was not alone either as Robert Collinson frequently sailed for the Earl of Winton trading salt, iron, and timber between Danzig, Lubeck, Bremen, and Scotland.³³ So too did John Sinclair, an Edinburgh merchant that would

²⁷ Kathrin Zickermann, "Scottish Merchant Families in the Early Modern Period," *Northern Studies* 45 (2013): 102-05.

²⁸ Zickermann, "Scottish Merchant Families," 109-110.

²⁹ NRS, RH15/112/3/9, Account of iron work wrought by John Gilmour; NRS, RH15/112/3/7, Account of Sir William Wallace.

³⁰ NRS, CS96/1726, Gilbert Robertson, merchant, Edinburgh, letter book.

³¹ NRS, RH15/106/147, Papers of Andrew Russell, merchant in Rotterdam.

³² NRS, RH15/106/139, Papers of Andrew Russell, merchant in Rotterdam.

³³ NRS, RH9/1/176, Accounts of Captain Robert Colinson, 1684-89.

procure iron in Amsterdam.³⁴ While herring was a vital commodity in the North Seas markets, so too was iron and the salt it helped produce.

By itself, Scottish salt in the seventeenth century would not have been a highly coveted commodity based upon its taste and ability as a preservative. Most Scots preferred the taste of other European salts, and it was poor at preserving fish and meat, the only exception being that Scottish fisherman liked it for preservation of cod fish. Despite this, the Scottish salt industry and Scottish saltmasters kept afloat during typically rough times for the Scottish economy and often yielded profits during the seventeenth century, thanks in part to war, disasters, and a highly politicized (monopolized) domestic trade.

While the positioning of Scotland required a heat source to produce salt, Scotland was better off than most of the Baltic countries, which lacked water with a high enough saline content to produce salt.³⁵ Thermohaline circulation, sometimes referred to as the oceanic conveyor belt, disperses heat and regulates saline levels through the oceans in a large conveyor-like system. This circulation is responsible for redistributing warmer water with a higher saline content from the Atlantic to the British Isles and Europe, and it also redistributes food sources for herring through upwelling occurring near the Shetland Shelf. Because of its location, shallowness, and large amount of fresh water runoff, thermohaline circulation does not bring in water with a high enough saline concentration to the Baltic for Baltic countries to be able to produce sea salt efficiently because of the higher fuel costs needed to produce it.³⁶ Because of this, when frequent

³⁴ NRS, GD164/1126, Financial papers relation to Mr. John Sinclair.

³⁵ Whatley, *The Scottish Salt Industry*, 33.

³⁶ Mats Walday, Tone Kroglund, and Norwegian Institute for Water Research (NIVA), "The Baltic Sea," *European Environment Agency* (2008): 5-21.
https://www.eea.europa.eu/publications/report_2002_0524_154909/regional-seas-around-europe/page141.html.

warfare and natural disasters of the seventeenth century prevented a regular supply of salt from the preferred Mediterranean countries to the Baltic, the Scottish salt industry found a willing market. Scottish salt traded in the Baltic and parts of the North Seas market, and it competed well with English salt exports up through the beginning of the eighteenth century.³⁷ Scottish salt exported for domestic use was able to compete in many of the Germanic and Baltic markets³⁸ For example, Scottish salt made up 38% of all salt imports into Bremen in 1628 and it remained one of the more popular types of salt sold in Baltic markets like Bremen and Hamburg through the seventeenth century.³⁹

Domestic trade played an even more significant role for the Scottish salt industry, especially after the 1660s when Scottish salt masters influenced the Scottish legislative acts of 1661 and 1665. These acts created a monopoly on salt in Scotland, which only allowed for domestically produced salt in Scotland, apart from the fishing industry.⁴⁰ There were several later versions to these first acts (1671, 1672, 1694) forbidding the use of foreign salt. The loopholes for allowing foreign salt into the country to cure fish had been overly exploited as the 1671 act claimed that banning foreign salt was for the good of the kingdom and “to encourage the manufactories thereof” because without doing so, the “useful manufactory of salt is like to be ruined.” The act also pointed out how salt was a significant industry in the country and posited that many thousands who depended upon the work of the salt industry would be brought to

³⁷ Philipp Roessner, “New Light on Whatley’s Numbers’: The German Market for Scots Salt in the Eighteenth Century,” *The Scottish Historical Review* 87 (2008): 104.

³⁸ Roessner, “New Light on Whatley’s Numbers,” 112.

³⁹ Roessner, “New Light on Whatley’s Numbers,” 111.

⁴⁰ Whatley, *The Scottish Salt Industry*, 6.

“extreme poverty” if this act was not passed and the salt industry collapsed, which was a likely scenario given the poorer quality of Scottish salt.⁴¹

The account book of William Hay, factor of Sir James Cockburn, illustrates the success that was possible in the Scottish domestic salt trade as well as some participation in a larger North Seas trade, in this case for the 1670s. Their books show that they shipped out larger orders of salt (over £100) at least a couple times a month. This included shipments throughout Scotland as well as exports to Holland, Norway, Danzig, and Ireland. In addition, Hay found a lucrative market with the Scottish military and supplied military forts with salt. In one year, he had orders for £1333 and £1800 and Hay claimed that many forts in Scotland bought salt from him. From their records, Hay sold about £100,000 per year in the salt trade.⁴²

While the rest of the country suffered through the grim times of the 1690s, much of the Scottish salt industry remained consistent in production, thanks in part to domestic sales and the ongoing wars that opened new markets for limited periods.⁴³ In this chapter’s introduction, Daniel Hamilton begrudgingly pointed out the irony in the whole situation because while “the dutch cannot subsist without British coal...they discharge the use of British salt.” The Dutch imported their salt from France or Portugal and then boiled it with “our coal” to get the correct consistency and then sold it back to Scots as salt or as preserved flesh. He argued that if they could convince the Dutch to buy Scottish salt for domestic uses, it would be a great boost to Scottish salt and coal industries.⁴⁴ Additionally, if Scottish salt masters could create a better

⁴¹ NRS, RH14/33, Proclamation; import of Salt prohibited 9 Mar. 1671; NRS, RH14/35, Proclamation; use of foreign salt prohibited, 18 Sep. 1672.

⁴² NRS, CS96/64, William Hay, factor of Sir James Cockburn of that Ilk. Account book, 1673-78.

⁴³ Whatley, *The Scottish Salt Industry*, 43.

⁴⁴ NRS, GD406/1/5009, Daniel Hamilton, Kinneil, to [the duke of Hamilton], 4 Jan. 1703.

quality salt to preserve herring and other fishes, it could greatly boost their trade. The next section describes some of the efforts to create a new salt and with it, control the herring trade.

Salt, Herring, and the Company of Scotland

Like so many others at the end of the seventeenth century, the Company of Scotland stated that a “fisherie trade” would be beneficial to the company’s stock and for the country as well.⁴⁵ The Company of Scotland is best known for its attempt to set up a trading colony in present-day Panama, which will be discussed in chapter 6, but prior to this endeavor, they first set their eyes on Scottish salt and herring as an opportunity for investment. In fact, it was so important to the Company of Scotland that at the second meeting of the Council General of the Company of Scotland, they discussed the fishing trade and industry and listed this among their first acts, orders, and resolutions. The first meeting and first acts set down the bylaws, memberships, and regulations of the council, but the first official order of business for the Company focused on “the Fishery of this Kingdom.”⁴⁶ Even more important was that the Company of Scotland and the Council General passed a motion on June 3, 1696, “concerning the improvement of salt for the use of this company.” This motion was to be kept secret, in part because of the pushback this attempt to cut into the salt industry would receive and because the profit from this was potentially great.⁴⁷ Scottish saltmasters had a lucrative hold on the salt trade within Scotland and would not welcome a new competitor.

In pursuit of their salt and fishing endeavors, the Company hired Robert Cragg, a London merchant, to advise them in their “improvements in making of salt and Carrying on the Fishery-

⁴⁵ [R]oyal [B]ank of [S]cotland D/1/1 October 17, 1697.

⁴⁶ RBS, D/1/1, Jun. 1696.

⁴⁷ RBS, D/1/1, 3 Jun. 1696.

Trade.”⁴⁸ The Company also acknowledged an intended act of the Scottish Parliament “in favors [sic] of this Company for making improvements in Salt and for encouraging fisherys.”⁴⁹

Furthermore, the members of the Company who were in the Scottish Parliament were directed to “move in parliament something for the encouragement of fisheries,” demonstrating the importance of investment and improvement in the salt trade and fisheries in Scottish politics.⁵⁰

Within a month “the saltmasters and the African Company were fully heard upon the act proposed for the new fashion of making salt” and it was known that the company sought a monopoly of the new method of making salt and the salt trade, which they claimed was for “the good of the nation.”⁵¹

Unfortunately, their records did not disclose what this new method of making salt entailed. It was often referred to as a “new salt” or a “salt upon salt” and was likely an attempt to create a blend of Scottish salt with a higher quality imported salt, but the details are perhaps intentionally scarce, though this was not unique to the Company’s proposal. Yet, if the Company made an improved Scottish salt, this would remove much of the need for foreign salt and would soon become the only way to preserve Scottish caught herring for export. It also meant that the Company would have an improved type of domestic salt as well. In doing so, the Company of Scotland was in fact attempting to monopolize the salt and herring industry at the same time and did so while commonly offering the argument that it was “for the good of the nation.”

This view was not universally held, however, especially by the Hamilton family and other saltmasters within Scotland. The Hamilton family owned many salt pans along the Firth and

⁴⁸ RBS, D/1/1, 11-14, Sept., Edinburgh, 130,133, 135,137.

⁴⁹ RBS, D/1/1, 11-14, Sept., Edinburgh, 130,133, 135,137.

⁵⁰ RBS, D/1/1, 11-14, Sept., Edinburgh, 130,133, 135,137.

⁵¹ NRS, GD406/1/4125, James Hamilton, Edinburgh, to the Earl of Arran, 22 Sep. 1696.

James Hamilton, the future duke of Hamilton, wrote that the “considerable saltmasters” all agreed that the Company of Scotland’s act was bad for them.⁵² John Hamilton wrote to his brother James that “the African Company [full name was Company of Scotland Trading to African and the Indies] are going to incroach [sic] upon [his interests] extremely” and if the Company’s act to control the making of salt passed, it “will destroy all the coal and salt masters trade in Scotland.” This was in part because the Company could, as he argued, take land that was close to the sea, even land that was already owned by anyone else, suggesting an earlier form of eminent domain.⁵³ They feared that with the backing of an act passed by the Scottish Parliament, they would be able to seize their land if the Company thought it was vital. James Hamilton put the issue more bluntly stating that the act would be detrimental for the Hamilton family because it would hurt their business in the salt trade and more importantly the act would take land away from the Hamilton family that was near the sea or Firth, which was commonly sought after for making salt.⁵⁴

The Scottish salt industry had some influence in the Scottish legislature and the Hamilton family’s dealings with the Company of Scotland during 1696 also highlighted their influence. For example, Basil Hamilton wrote that the African Company’s acts about salt manufacturing were “in general is prejudicial to the salt masters” and also to the Hamilton family’s own interests in the salt industry.⁵⁵ He argued that he would do all that he could to oppose it, but those members of the African Company in the Scottish Parliament were likely “too strong” to oppose

⁵² NRS, GD406/1/6871, James Hamilton of Pencaitland], Edinburgh, to the earl of Arran, 19 Sep. 1696.

⁵³ NRS, GD406/1/6868, [Lord John Hamilton], Minthouse, to his brother [the earl of Arran], 26 Sep. 1696.

⁵⁴ NRS, GD406/1/6872, James Hamilton to the earl of Arran, 17 Sep. 1696.

⁵⁵ NRS, GD406/1/7479, Basil Hamilton to the Earl of Arran, 30 Sep. 1696.

and conceded that their act would likely be passed because it had been portrayed as being for the general good of the country.⁵⁶

John Hamilton's feelings of the Company of Scotland reflected many of those involved in the salt industry that initially invested in the Company when he wrote that "he doesn't understand the African Company."⁵⁷ He thought that they were to set up trade in the Indies and "not set up to ruin manufactories that are established by law."⁵⁸ He did all he could to oppose the Company's "new fashion salt" act in the Scottish Parliament and stated that her grace, Anne Hamilton, was opposed to this act as well and she too "will do what she can to hinder it." John Hamilton believed that the African Company were very ungrateful for what their family had done for them, being one of the first supporters and larger contributors ("very considerably") to the company and argued that it went against their first proposition of an overseas trading company, which had secured their initial investment.⁵⁹

William Paterson tried to calm the waters and wrote to James Hamilton to justify the salt act that the Company of Scotland sought. Paterson argued that the salt from this act was for the preservation of fishes and that it was meant to promote the fishing of the kingdom, which, in turn, would help promote the foreign trade of Scotland that had been struggling. Like Sibbald, Paterson saw this project as a vital connection between the fishing industry, the salt trade, and the wealth of the country.⁶⁰ While Paterson navigated these political waters, other members of

⁵⁶ NRS, GD406/1/7530, Basil Hamilton, Holyroodhouse to Earl of Arran, 7 Oct. 1696.

⁵⁷ The Company of Scotland was sometimes referred to as the African Company because their full title was the Company of Scotland Trading to Africa and the Indies.

⁵⁸ NRS, GD406/1/6868, [Lord John Hamilton], Minthouse, to his brother [the earl of Arran], 26 Sep. 1696.

⁵⁹ NRS, GD406/1/6847, [Lord John Hamilton], Minthouse, to his brother [the earl of Arran], 1 Oct. 1696; NRS, GD406/1/6281, 13 Oct. 1696.

⁶⁰ NRS, GD406/1/4139, William Paterson, Edinburgh, to the earl of Arran, London, 5 Oct. 1696.

the Company of Scotland carried on with their salt and herring endeavors from within the Scottish Parliament. Despite their fears, the final acts the Parliament of Scotland approved were not as critical to the Hamilton family as originally attempted, but they still provided an opportunity for the Company of Scotland's control over the salt trade by allowing a monopoly, for a limited period, for their new method of making salt.

Two acts from the Scottish Parliament on October 9 and 12, 1696, detail the Company of Scotland's salt and fishing ambitions. They began with the Parliament of Scotland describing the importance of the "improvement of the fishings of this kingdom," and because fish cannot be cured except by the new method of salt upon salt it "deserves all due encouragement."⁶¹ The act then granted William Erskine "and those who shall joyne as copartners with him [the Company of Scotland]" permission to manufacture salt upon salt.⁶² Erskine, an Edinburgh merchant and an important member of the Company of Scotland who received subscriptions on their behalf, was heavily involved in the salt trade by 1695 and rented a coal and saltworks at Kinneil for 19 years.⁶³ Erskine and others, including George Campbell, developed salt upon salt, or a new method of improving salt by upwards of a "tenth part in quality" and "a third part in quantity" from the "ordinary way" and used no more wood or coal to produce the salt.⁶⁴ They argued that his method collected 12 bolls of salt where the others collected 10, and where the previous

⁶¹ NRS, PA7/15, 120.

⁶² NRS, PA7/15, 120.

⁶³ William John Lawson, *History of Banking in Scotland: Embracing a Brief Review of the Revenues of Scotland: with a Copy of the Act of the Scottish Parliament Establishing the Bank of Scotland* (London: Richardson, 1845), 13; NRS, GD406/1/6650, [James Hamilton of Pencaitland], Edinburgh, to the earl of Arran, 5 Jul. 1695.

⁶⁴ George Campbell was involved with the Company of Scotland's attempt to make salt. They agreed to work with him for a period of 21 years, in exchange for a one ninth percentage. This contract stated that he was part of the privy council decision that allowed him exclusive rights to produce salt in this new method for a period of 25 years. See NRS, GD124/7/57, Abbreviat of the contract betwixt the Saltmasters and Mr. George Campbell, 1700.

method yielded 15 bolls weekly, the new method would yield at least 20.⁶⁵ They neglected to disclose much of how this method worked, perhaps intentionally to avoid competition, though it likely included importing higher quality salt and mixing it with Scottish salt.

With the help of Erskine, Campbell, and part of the money from its stock, the Company of Scotland “project[ed] to make salt of a new fashion not formerly practiced within this nation for curing of fishes without the help of any foreign salt.” If successful, this new method of salt production meant that all merchants and fishermen who wanted to preserve fish, would need to purchase their salt through the Company of Scotland. By controlling the salt trade, they gained possession of the herring and fishing trade (not its catch, but the export of it). Because this new method of salt was viewed to be an “improvement of the natural product of this kingdom,” and because their method had “never [been] practiced before in this kingdome,” the Scottish Parliament granted them a monopoly in the “new” method of making salt for 9 years, and other special privileges, like excise exemptions for 21 years.⁶⁶ They were also granted land “within the sea-mark or on the coast or one [sic] the side of anywhere the sea flowes [sic],” which resembled an early form of eminent domain.⁶⁷ By December 1696, Robert Cragg was looking at potential places to set up work for the improvement in the making of salt and the Company set up a committee (Lord Ruthaven, Lord Justice Clerk, Lord Justice of Edinburgh, Sir John Home, Sir Francis Scott, Sir John Livinton, and Robert Watson) to confer with Cragg about the “nature and expense” of this operation.⁶⁸

⁶⁵ NRS, GD124/7/57, Abbreviat of the contract betwixt the Saltmasters and Mr. George Campbell, 1700.

⁶⁶ NRS, PA7/15, 115, 120.

⁶⁷ NRS, PA7/15, 115.

⁶⁸ RBS, D/1/1, Dec. 1696, Edinburgh, 162-3.

Despite their initial interest, by the beginning of 1697, the pursuit of a salt industry virtually dropped from the Company of Scotland's record books. The records of the Company do not tell us why it lost interest in this pursuit. Maybe the Company of Scotland lost interest as its efforts with the Darien expedition developed. Perhaps, the Scottish saltmasters had enough leverage to prevent the Company of Scotland's efforts. After all, even with its many supporters and investors in the Scottish Parliament, their efforts were still amended and ultimately failed in creating their new salt.⁶⁹ As Christopher Whatley demonstrated, "many of the major saltwork owners were also either members of the Scottish legislature or had influence in it."⁷⁰ The clearest example comes from the salt monopoly established through the Scottish legislature in the 1660s. By 1705, families that were influencing the salt and coal trade itself in the Scottish legislature included the Hamilton family, who owned large parcels of lands along the Firth and at Bo'ness, as well as the Mar, Bruce, Morison, Elphinstone, and Wemyss families.⁷¹ Many of whom directly objected to the Company of Scotland's salt making plans. Nevertheless, perhaps stimulated by this attempt by the Company of Scotland to encroach on their domain, by the beginning of the eighteenth century, Scottish salt masters, as a whole, were more financially successful than most industries in the rest of the country and had emerged as an influential force in creating or at least influencing legislation in Scotland, which included the negotiations for a union.⁷²

Coal

Peat and even wood burning salt pans had long existed in the region, but by the seventeenth century the former was much more prominent than the latter because it was a more

⁶⁹ See chapters 6 and 8 for more on this attempt.

⁷⁰ Whatley, *The Scottish Salt Industry*, 5.

⁷¹ Whatley, "Salt, Coal, and Union," 37.

⁷² Whatley, *The Scottish Salt Industry*, 80-86.

available heat source in Scotland. Peat fueled salt pans were typically found in Galloway and in the Scottish Isles, especially Shetland and Orkney. Places that utilized peat and had the most success, typically had a steady supply of peat nearby, which closely resembled the successes of coal-fueled salt mines, but unlike coal fueled salt pans, peat fueled salt pans were typically seasonal, like in Shetland and Orkney, which resembled the herring fishing industry in those locations.⁷³ A declaration by Patrick and Robert McDowall provided some description of the amount of peat utilized in peat-fueled salt pans. They described using up to 3,000 loads of peat per year and with the help of one horse, they kept production going for much of the year.⁷⁴ Although peat-fueled salt pans had some success, Whatley (1987) posited that peat fueled salt pans accounted for only 1% of Scottish salt production in the late seventeenth century, and, therefore, the emphasis of this chapter is on Scottish coal as a heat source.⁷⁵

Scottish coal mining as a fuel source had taken place since the middle ages, albeit on a small scale.⁷⁶ Ecclesiastical records denote increased coal mining on monastic lands in the thirteenth century.⁷⁷ By the sixteenth century, Scottish coal production expanded, which increased sales and exports and by the beginning of the seventeenth century, Scottish coal mining became more intensive, though still relying on shallower and more easily reached coal seams.⁷⁸ The Scottish coal industry was highly dependent upon purchases by the salt industry in the seventeenth and early eighteenth centuries. And, it is telling that while the records of the

⁷³ Whatley, *The Scottish Salt Industry*, 10-13.

⁷⁴ NRS, GD154/451, Declaration by Patrick and Robert McDowall, elder and younger of Logan, that their salt pan is set to James Mitchell, 4 May 1688.

⁷⁵ Whatley, *The Scottish Salt Industry*, 10.

⁷⁶ Donald Adamson, "A Coal Mine in the Sea: Culross and the Moat Pit," *Scottish Archaeological Journal* 30 (2008): 170.

⁷⁷ Hatcher, *History of British Coal Industry*, 97.

⁷⁸ For more information on early Scottish coal mines and the mining process see Adamson, "A Coal Mine in the Sea," 161-99.

Scottish coal industry prior to the mid-part of the eighteenth century are quite scarce, much of what we know about the Scottish coal industry and coal trade comes from the salt industry, mainly along the Forth and the Clyde.

In the seventeenth century Scottish coal mines were typically close to the surface and near salt pans and the waterfront. While Scottish coal had uses in other industries like metal smithing, soap making, lime, and glass making, it was often referred to as “sea coal,” which was a direct connection between the coal mined and utilized solely in sea salt production.⁷⁹ While Scottish coal was useful as a heat source, it was often thought to be too smoky when burned for indoor use, which left it for export or industrial use. In addition, its location near the sea made it easier to export or to be utilized in the nearby salt industries. It was not until larger industrialization in the later eighteenth century that coal became more profitable than salt, as demand for coal grew, however, at the beginning of the eighteenth century, Scottish coalmasters relied upon the salt industry market, as coal mines and salt pans frequently had the same land owners.⁸⁰

Scottish traders attempted to export Scottish coal into a larger North Seas market, especially to the Low Countries. Export records from the early seventeenth century list Scottish coal exports between 5,000-20,000 tons per year.⁸¹ At one point in the 1660s there were as much as 70,000 tons exported, though this amount was quickly back down to around 20,000 tons by the 1680s, in part the result of increasing tariffs.⁸²

⁷⁹ NRS, CS96/4460, Daniel Hamilton, chamberlain of Grange and John Hamilton, coal-grieve of Grange. Coal-works monthly accounts 1695-1702.

⁸⁰ Whatley, *The Scottish Salt Industry*, 2.

⁸¹ Hatcher, *History of British Coal Industry*, 103.

⁸² Hatcher, *History of British Coal Industry*, 103.

A report by William Brown in 1683 claimed that there was a great need for Scottish coal in the Low Countries, especially Flanders. This, the author argued, was in large part because wood resources had been destroyed by warfare, and the brewers in the Low Countries needed a fuel source and would pay well for it, as would the salters, soapers, and smiths.⁸³ Another attempt [undated, mid-seventeenth century] to expand the Scottish coal market comes from a memorandum between Scottish coalmasters and the magistrates of Campvere (Veere), Netherlands, and shows efforts to set up a Scottish North Sea coal trade through this key merchant enclave. This agreement still funneled trade through a mercantilist system with the state regulating the trade, or at least the licensing of traders, but the agreement allowed for some flexibility in the amount of exported coal. Like the first report, the authors of this document suggested that there was a readily available market for their coal and they claimed that Scotland benefitted from this trade because it meant coalmasters would need to hire more people, especially the unemployed.⁸⁴ An example of this effort to expand the Scottish coal trade is represented in a 1699 account from Borrowstounness (Bo'ness) and although it highlighted their declining trade, it also demonstrated some of the larger connections of the Scottish trade within the North Sea, as coalmasters shipped Scottish coal from the Firth to merchants in Holland. Their ships then either returned to Scotland with the profit or sailed to Norway for timber, which was then employed in the coal and salt works.⁸⁵

⁸³ NRS, GD124/17/522, Report by William Broun [Brown] about unfair duties imposed upon Scottish coal imported into the Low Countries, 15 Mar. 1683.

⁸⁴ NRS, GD124/17/509, Memorandum of points to be included in an agreement between Scots coalmasters and magistrates of Campvere regulating export of Scots coal to the Low Countries, 17th cent.

⁸⁵ NRS, GD406/1/6486, Representation for the Town of Borrowstounness, Humbly Offered to the Commission for Setling of Trade, 22 Mar. 1699.

Despite efforts like those listed above, and the relative financial success of the salt trade during the second half of the seventeenth century, the coal trade and the coal industry withered because of high overseas tariffs, damages, and a decline in shallow coal yields.⁸⁶ An account from the coal and salt works at Thornton from 1681 claimed that “they [the coal works] are so ruinous and decayed a part” and “if not helped they will speedily perish and decay.”⁸⁷ In 1695, there were complaints by the various coalmasters in Kinneil over the raising of the cess (tax) on coal and salt and called the idea to raise the cess “unreasonable.”⁸⁸ A few years later in 1702, Daniel Hamilton discussed how difficult it was to maintain a profit at their coal works at Kinneil. He described the small expenses, mostly maintenance and upkeep, that cut into their profit and much like the previous passage, Daniel Hamilton suggested that any change in their situation, specifically a raise in taxes in either the coal or salt trade, would hinder and potentially shut down their coal operations.⁸⁹

To make matters worse, as increased storminess at the end of the seventeenth century harmed farmers and significant landowners in Scotland, it was also detrimental to the coal and salt industry, especially the minor salt and coal masters. Outside of usual repair and upkeep because of use, storms were the largest cause of damage and they were the most significant factor for salt pan closings in the seventeenth century.⁹⁰ Storms and winds placed debris into the pots of seawater and an increase in storminess resulted in more debris in seawater pots.

⁸⁶ Christopher Whatley, “Salt, Coal and the Union of 1707: A Revision Article,” *The Scottish Historical Review* 66 (1987): 27.

⁸⁷ NRS, GD6/1254, A short account of the present condition of the coal and salt works at Thornton, 17 Oct. 1681.

⁸⁸ NRS, GD406/1/7466, [Lord Basil Hamilton], Hamilton, to his brother [the earl of Arran], 13 May 1695.

⁸⁹ NRS, GD406/1/4969, Daniel Hamilton, Edinburgh, to the duke of Hamilton, 14 Mar. 1702.

⁹⁰ Whatley, *The Scottish Salt Industry*, 20-22.

Excessive rains and winds could stop production either through leaky roofs, which caused water to pour into the salt pan and ruined the consistency of salt, or it flooded the salt pans that were often close to coastal regions.⁹¹

While excessive rains were bad for the salt pans at the end of the seventeenth century, it was even worse for the coal industry. Excessive rains flooded many of the coal works. The “great flood and rains” of 1695 and 1696 saw colliers employ men and horses at all hours to help prevent coal mines from flooding, however, doing this was complicated by the shortage and high prices for grain at the start of the famine-like conditions in Scotland.⁹² The situation was repeated in 1698 and 1702 with excessive rains flooding mines on both sides of the River Forth and ultimately forced some of the Hamilton mines at Kinneil to shut down permanently by 1702.⁹³ Additional reports described the 1701 flooding of the coal fields in Arran, others mentioned flooding killing a collie (coal worker) and “the most excessive rains” shutting down mines in Bo’ness in 1702.⁹⁴ Even as late as 1704, stormy conditions hampered mining as Mark Stark’s account of the coal works at Bo’ness described another delay in the production of the mines because of the problems of the “seasons of the year” [rains].⁹⁵ These problems only added to the struggling finances of many coalmasters at the end of the seventeenth century.

⁹¹ Whatley, *The Scottish Salt Industry*, 22.

⁹² Whatley, *The Scottish Salt Industry*, 62-3.

⁹³ NRS, GD406/c1/4137, Daniel Hamilton to the duke of Hamilton 3 Feb. 1702 Found in Whatley, *The Scottish Salt Industry*, 63; NRS, GD406/1/4292, Daniel Hamilton to the earl of Arran [Hamilton], 18 Jan. 1699. Says that in May 1698 heavy rains and flooding had damaged both crops and flooded mines, leaving them idle for some time.

⁹⁴ NRS, GD406/1/6557, [Lord Basil Hamilton], Hamilton, to the duke of Hamilton, 21 Jun. 1701; NRS, GD406/1/4991, John Callender, Bo’Ness, to [the duke of Hamilton], 3 Feb. 1702.

⁹⁵ NRS, GD406/1/5121, Mark Stark to Captain John Bruce, enclosing for the duke [of Hamilton] an account of the [coal] works at Bo'ness, 24 May 1704.

Reports from coal works in the 1690s and early 1700s, especially along the Firth, frequently discussed the financial difficulties they endured. Daniel Hamilton's records of the coal and salt trade of the Hamilton family at Kinneil, near Bo'ness, depicted the failings (at least in their eyes) of the coal trade at the start of the eighteenth century. The total profits from mines in the area were over £8,300 scots from August 1703 to August 1704, but the rests of the mines for the same period valued over £8,800 scots. In addition, each year the profits from the land, usually agriculture, were outperforming the coal and salt mines.⁹⁶ James Hamilton pointed out the Hamilton family's failings in the coal trade writing that "you [the duke of Hamilton] are a loser by the coal," and positing that the coal mines depleted land rents every year in Bo'ness (Kinneil).⁹⁷

The response of coalmasters, coal traders, and even saltmasters to these difficulties was to seek out new seams of coal that were accessible near the surface to boost production and yield higher profits. A group of Edinburgh merchants along with the earl of Mar sent Alexander Edward to Newcastle to see the "improvement" of land and they were particularly interested in the activities of a coal and lead mine outside Newcastle. The benefactors of the trip included Panmure, Mar, Strathmore, the earls of Southesk, Northesk, and Laudon.⁹⁸ Nonetheless, efforts

⁹⁶ NRS, GD406/1/5190, "Ane abreviat of Daniel Hamilton's Intromissiones, Kinneill, with the Rents of Kinneill, Polmont etc. Crop 1703 and with the Causall Rent of Kinnieill from 16 August 1703 till 21 August 1704" [29 Sep. 1704].

⁹⁷ NRS, GD406/1/5191, [James Hamilton], Edinburgh, to [the duke of Hamilton], 2 Nov. 1704; Hamilton accounts from other locations have similar patterns. Some years of profit had occurred by 1707. See NRS, CS96/4460, Daniel Hamilton, chamberlain of Grange. John Hamilton, coal-grieve of Grange. Coal-works monthly accounts 1695-1702.

⁹⁸ NRS, GD124/16/24, Receipt by Robert Bruce, goldsmith in Edinburgh, from the Earl of Mar, 15 May 1701.

like these still ran into problems as coalmasters had difficulty finding buyers as the rest of the country struggled to purchase the coal that was available.⁹⁹

The Scottish economy was struggling at the end of the seventeenth century. Reports claimed that hard currency or specie became scarcer as early as 1695 and was made worse by agricultural shortages and a failed overseas trading company by the turn of the century.¹⁰⁰ The general shortage of money became problematic for most people in Scotland including the coalmasters. Coalmaster Daniel Hamilton illustrated some of the latest problems people now faced because of a lack of specie. The scarcity of currency meant that business owners, like Daniel Hamilton, could not access specie to pay their workers. Workers suffered because they could not be paid and provide for themselves or their families, and in response, they stopped working, which hurt the business owners, and the workers too in lost wages.¹⁰¹ This also meant people struggled to purchase coal which was typically purchased with specie.¹⁰² Even during periods of high demand for coal this was true as Daniel Hamilton bemoaned in 1701, because the ability to pay for coal proved difficult for many.¹⁰³

The other major problem for the coalmasters was the availability of coal. A scarcity of coal could have had a catastrophic impact on Scottish salt production as an estimated nine-tenths of Scottish coal went to the salt industry.¹⁰⁴ Some salt pans would still have operated since

⁹⁹ NRS, GD406/1/5009, Daniel Hamilton, Kinneil, to [the duke of Hamilton], 4 Jan. 1703.

¹⁰⁰ NRS, GD406/1/6755, [James Hamilton of Pencaitland] to the earl of Arran, 5 Mar 1694/1695; See also the Company of Scotland in chapter 6.

¹⁰¹ NRS, GD406/1/5104, Daniel Hamilton, Kinneil, to the duke of Hamilton, 27 Dec. 1704.

¹⁰² Whatley, "Salt, Coal, and Union," 36.

¹⁰³ NRS, GD406/1/10918, [James Hamilton of Pencaitland], Edinburgh, to the duke of Hamilton, 7 Oct. 1701; the strike of his workers added to the difficulties. Although the workers had many of their own problems see Christopher Whatley, "'The Fettering Bonds of Brotherhood': Combination and Labour Relations in the Scottish Coal-Mining Industry c. 1690-1775," *Social History* 12 (1987): 139-54.

¹⁰⁴ Whatley, *The Scottish Salt Industry*, 23.

English Tyneside coalmasters sold their “trash” coal to Scottish saltmasters, but the vast majority would have suffered or had to provide much more specie for coal imports.¹⁰⁵ Because of this, at the start of the eighteenth century, the situation for the coal industry appeared quite bleak. A 1699 account from Borrowstounness described their coal as “near worn out” and “that in a short time there will be a total decay of coal and the place quite deserted and depopulate such as many Burgs on both sides of the River of Forth.”¹⁰⁶ Daniel Hamilton’s analogy was that “it is as evident as the sun shines that four part of five of all the coals of Scotland (which hath communications with the sea) is exhausted and if a computation were made it will be found that there is not as many on both sides of the river of forth as will serve those parts ane hundred years time.”¹⁰⁷ The situation appeared quite bleak and despite their efforts, the Hamilton family was unable to find new seams and in their own mines they had to dig deeper for coal.¹⁰⁸ As a result, Scottish coalmasters at the beginning of the eighteenth century were “scarce able to keep their works going unless methods be allowed and taken for their encouragement.”¹⁰⁹

Although the interests of coal and salt masters were often intertwined, as one commentator wrote how “most of our coall-works do intirely depend upon our salt-works, and if they fail, our coal must fall in consequence,” that did not mean their prosperity was equal.¹¹⁰ By the beginning of the eighteenth century, and the intensification of union discussions between Scotland and England, the profitability of the salt and coal trade differed greatly. With the

¹⁰⁵ Whatley, “Salt, Coal, and Union,” 34.

¹⁰⁶ NRS, GD406/1/6486, Representation for the Town of Borrowstounness, Humbly Offered to the Commission for Setling of Trade, 22 Mar. 1699.

¹⁰⁷ NRS, GD406/1/4975, Daniel Hamilton, 'Memorandum concerning Coall and Salt,' [23 Apr 1702].

¹⁰⁸ NRS, GD406/1/10764/1, Daniel Hamilton, Kinneil, to the duke of Hamilton, 27 Apr. 1704.

¹⁰⁹ NRS, GD406/1/10726, Daniel Hamilton, Kinneil, to the duke of Hamilton, 16 Aug. 1704.

¹¹⁰ NLS, *Remarks for the Salt-masters*.

monopoly over domestic trade, Scottish salt had thrived after the Restoration period and although the Scottish coal trade took part in the North Seas market, the opportunities for trade were diminishing at the start of the eighteenth century with the closure of markets because of protectionist mercantile practices by other states. Additionally, the most easily accessed Scottish coal near the surface was thought to be running out, which would have required greater investment to access more coal, or a lessening on any trade restrictions and tariffs to offset new investments into less accessible coal. Despite their interconnections, the differences in the profits of the salt and coal industry by the beginning of the eighteenth century set up drastically different ideas of what union would mean for Scotland and their industries. The last chapter explores these differences and how they split voters during the Union negotiations.

CHAPTER 5

Creating a Famine: The Slow Development of Scottish Agriculture and the Early-Modern Subsistence Economy

The Earl of Tullibardine wrote in June 1698 that “the famine that this country already suffers far from several places there are accounts of people dying on the highways and there’s such a scarcity of mony that nowhere it circulates. This account I assure you is from good hands.”¹ It is noteworthy that Tullibardine put the additional aside in his letter that the account came from ‘good hands,’ as if it seemed unreal. A few years later, in 1701, Charles, the earl of Selkirk commented upon the recent abnormal weather writing that “if you have as bad weather where you are as well we have heare it is not weather to contrsut [contrast?] to the recovery of any body that is ill.... I never saw worse weather in January then it has been of great with cold north east winds and yesterday a today it has almost always snowed and the snow lay til noon today which is very strange here at this time of year.”² These accounts, much like this chapter, highlight the adverse effects of climatic aberrations in Scotland and the British Isles during the last third of the Global Little Ice Age. While chapter two demonstrated the major features and changes affecting the Scottish climate during the Global Little Ice Age, this chapter focuses on two key periods, the 1670s and 1690s, when these climatic changes most powerfully affected Scottish agriculture and in turn the Scottish economy and Scottish society.

¹ NRS, GD406/1/9080, Katherine, countess of Tullibardine, the earl of Tullibardine, and Lord Basil Hamilton, begun by the countess, continued by her husband and concluded by Lord Basil, Holyroodhouse, to their brother the earl of Arran, 18 Jun. 1698.

² NRS, GD406/1/7167, Charles, earl of Selkirk, London, to his brother [the duke of Hamilton], 17 Apr. 1701.

This chapter takes a multifaceted approach utilizing an event-based narrative to investigate some of the main subsistence crises affecting Scotland during the 1670 and 1690s. It examines the causes of these scarcities, highlighting their environmental underpinnings, but also commenting on socio-cultural factors as well. A changing Scottish environment, particularly climate, decreased agricultural yields, and the limited development of the early modern Scottish subsistence economy at the end of the seventeenth century, pushed Scotland towards Union and with it a British focused economy. The narrative of this chapter will be familiar to those with a background in Scottish historiography, as the “Ill Years” or famine years at the end of the 1690s take up a sizable portion of this chapter. There is good reason for this, as grain harvests in much of the region failed in 1695, 1696, and 1698, which forced a reliance upon imports and eating seed stocks for basic subsistence. This grave situation was further complicated by poor climatic conditions and subsistence crises impacting much of the North Seas World between 1693-1700, which increased the demand and price for grain across much of this region. By exploring examples from the 1690s it becomes clear that the climatic and environmental changes associated with the Global Little Ice Age had a direct effect on Scottish agriculture. This in turn created scarcity and then famine by the end of the 1690s and led large landowners, tenant farmers, merchants, and even members of the Scottish Parliament into economic decline. It is important to emphasize that this situation also resulted from the sociocultural response to a changing climate over several decades and was not solely the simple outcome of an anomalously ‘cool’ climate during the 1690s.

While the 1690s get the lion's share of attention in Scottish historiography, regionally, farmers, landowners, and merchants had financial struggles, on both sides of this decade.³ Yet, this longer term development of a subsistence crisis was as much the result of the structural problems and the exploitative tendencies of rural society, largely left over from the previous century, as it was the climatic changes. It was the interplay of these factors which made the 1690s so severe and created poor economic conditions lasting up through the negotiations for union and pushed others to look outside of Scotland, and even the North Seas World, for solutions to the crisis.

Creating a famine: Scottish Agriculture during the Global Little Ice Age

The origins of food scarcity and famine in Scotland during the late seventeenth century rest with the susceptibility of Scottish agriculture to climatic and environmental changes. While the Scottish economy consisted of several key products and industries, chief among these, at least for the vitality of the population, was the success of grain agriculture. That is not to say that cattle or other agricultural goods did not have an important role in the economy; they did. But Scottish cattle generally served more as a trade good and as a part of the market economy and for elite profits than they did for Scotland's direct subsistence. The Union of Crowns in 1603 helped expand the Scottish cattle trade in upland areas by lowering and later removing import duties, so too did the banning of importing Irish cattle into England. By the end of the century, between 6,500-23,000 sheep were exported annually into England and 10,000-50,000 cattle were exported annually as well. Almost all of the cattle came from upland areas in western Scotland.⁴

³ Karen J. Cullen, *Famine in Scotland: The 'Ill Years' of the 1690s* (Edinburgh: Edinburgh University Press, 2010), 15; See also Michael Walter Flinn, *Scottish Population History from the 17th Century to the 1930s* (Cambridge and New York: Cambridge Univ. Press, 1977).

⁴ Ian Whyte, *Agriculture and Society in Seventeenth-Century Scotland* (Edinburgh: J. Donald, 1979), 237-8.

For their subsistence, though, Scots depended largely upon their own yearly harvest and limited animal products, with 82% of Scottish caloric intake coming from grains planted during the spring season including oats, barley, bere, and occasionally wheat.⁵ To help meet these agricultural demands, Scottish farm lands usually followed a classic infield-outfield system.⁶ Infield farming, which still utilized ridge and furrow planting dating from the Middle Ages, was continuously worked and every 1-4 years was manured or left fallow, though there is some evidence to suggest that fallow periods had become less frequent by the late seventeenth century, denoting a trend toward intensification.⁷ By the end of the seventeenth century, some places had begun liming their fields in an attempt to replenish nutrients, though this was not yet widespread. Most Scottish agriculture still relied upon animal manure for fertilizer, if attempts to manipulate soil fertility other than fallowing were even attempted. Fertilizing was done intentionally with direct application of animal waste and animals foraging on fields after harvests helped accelerate the cycling of nutrients.⁸ Coastal areas would also utilize seaweed for fertilizer, which seemed to work best with bere.⁹ Animal and human labor were both prevalent on Scottish farms with oxen and horses being utilized for plowing and other labor intensive tasks. Oxen provided farmers with perhaps a better advantage costing less than horses and providing more fertilizer. For those who could not afford either, foot plows and spades worked the land.¹⁰ This system of infield

⁵ Cullen, *Famine in Scotland*, 46, 55.

⁶ Richard Hoffmann, *Environmental History of Medieval Europe* (Cambridge and New York: Cambridge University Press, 2014) 44-6; Robert Dodgshon, "The Nature and Development of Infield-Outfield in Scotland," *Transactions of the Institute of British Geographers* 59 (1973): 1-23.

⁷ Whyte, *Agriculture and Society*, 68.

⁸ Dodgshon, "Infield-Outfield in Scotland," 16-7; Whyte, *Agriculture and Society*, 68-9.

⁹ Whyte, *Agriculture and Society*, 69-70.

¹⁰ Whyte, *Agriculture and Society*, 71-3.

farming consisted of about a quarter of all tillable land in Scotland, though this percentage could be as high as two-thirds in parts of the lowlands.¹¹

The other three quarters of Scottish farmland was outfield and grazing. Outfield, which required a resting or fallow period, was often utilized as pasture for several years and then planted with a crop like oats, bere, or barley for a few years before left to fallow again.¹²

Although barley and bere could provide adequate harvests in some of these upland areas, it should be noted that this land was more focused on pasturage and animal rearing, especially sheep, cattle, and goats, though much of the diet in these areas was still grain based and relied upon what little they grew and traded. Much of the pasture or grazing land required fewer laborers for upkeep, aside from those keeping track of herds, and was only replenished by animals while grazing.

Much of the rental system agriculture was generally limited to oats, barley, and bere, especially in the more remote places, however, in the eastern lowlands wheat, peas, flax, and hemp was grown as well in smaller quantities.¹³ In fact, some of the earliest examples of specialized commercial farming in Scotland comes from wheat that was exported rather than utilized for food, but this was grown in very limited quantities.¹⁴ Much of the lowlands grew oats that were planted in February and harvested in September or October and grew better than wheat being hardier and better suited for the Scottish climate. Peas were also planted in the lowlands, but because of the wetter Scottish climate they produced low yields. They typically served to

¹¹ Smout, *History of the Scottish People*, 118; Whyte, *Agriculture and Society*, 61-8.

¹² Smout, *History of the Scottish People* 118; Mitchison, *Lordship to Patronage*, 95; Jan DeVries, *Economy of Europe in an Age of Crisis, 1600-1750* (Cambridge: Cambridge University Press, 1976), 38-41.

¹³ Smout, *History of the Scottish People*, 114.

¹⁴ Whyte, *Agriculture and Society*, 63-5.

replenish the soil since they were planted after the more nutrient demanding wheat and oat harvests.¹⁵ Where oats grew poorly, farmers grew four row bere, sometimes referred to as bear, beir, or beer, which was a barely-like grain that was better suited for the shorter growing season, which they planted in the spring (April in southern Scotland) about three weeks after ploughing, and grew well in the more acidic and sandy Scottish soils. In prime conditions, the return from most Scottish grains in the seventeenth century was between 3 and 5 bolls of harvested grain to every 1 boll of seed planted, though some accounts claimed upwards of 8:1 or 10:1 with fertilizing.¹⁶

Scotland's geography also shaped decisions on which crops to grow, and this was especially true in the different types of crops grown in the highlands and the lowlands. Figure 5.1 displays the marginal (blue) and sub-marginal (red and brown) lands for part of the British Isles based largely upon elevation. Scotland, by far contains more sub-marginal lands than any other country in the British Isles, which creates unique challenges for its agricultural system. For instance, much of Scotland contains land above 250-300 m (displayed as red and brown in figure 5.1), containing much of the highlands, where crop yields were vulnerable even to slight climatic variability. M. L. Perry (1981) has an even larger area of Scotland consisting of marginal and sub-marginal land, likely emphasizing the poorer quality soil types in northern Scotland as

¹⁵ Whyte, *Agriculture and Society*, 65.

¹⁶ Smout, *History of the Scottish People*, 118-120; Whyte, *Agriculture and Society*, 73-6; A boll (bol or bole) was a typical unit for measure weight of Scottish grains. For wheat, beans, meal, or peas 1 boll was 4 firlots, 16 pecks, over 3 bushels, or about 145 liters. For oats, barley, and meal 1 boll was 4 firlots, 16 pecks, more than 5 bushels, or about 212 liters. To maintain clarity, grain amounts are kept in bolls or monetary pounds. See the 1661 standard measure of Linlithgow, <https://www.scan.org.uk/measures/capacity.asp>.

well.¹⁷ One historical geographer argued that two-thirds of Scottish lands provided “rough grazing” at best and in some highland communities this rose to more than 90%.¹⁸ This also created regional differences within Scotland between lowland and upland agriculture.

Generally, agriculture in those upland areas pictured below had several inherent disadvantages. First, the growing season was shorter in many of these areas. Crops, especially bere, usually went in one month later and were harvested one month earlier than in the rest of the country.¹⁹ This limited the types of crops that could be effectively grown in those areas as part of an already limited crop base within Scotland. Oats could grow, but they typically sustained greater damage since they matured when stormy weather became more frequent. Because of this, many of these growers relied upon bere because of the shorter growing season. The major drawback was that all of the crops grown in those marginal areas yielded less than in the rest of the country at a ratio between 2.5 and 4 to 1.²⁰ Additionally, land in the upland or sub-marginal and marginal locations of Scotland, often experienced more rests that further reduced production.

Resting land was a common practice in Scotland during the seventeenth century. Land was left unplanted for one or more growing seasons to help increase yields during subsequent seasons. In other situations, land was rested because it sustained some type of damage, though exchequer records infrequently recorded whether such damage was caused by storms, animals, or humans. In the Scottish exchequer records, however, rested lands were indebted, typically to the crown, and these records listed the amount of money or goods that was due from the land. The

¹⁷ M.L. Parry, “History and Climate: Some Economic Models,” in G.M. Farmer, M. J. Ingram, and T. M. L. Wigley, *Climate and History: Studies in Past Climates and Their Impact on Man* (Cambridge and New York: Cambridge University Press, 1981), 326.

¹⁸ Whyte, *Agriculture and Society*, 8.

¹⁹ Robert A.: Subsistence Crises in the Scottish Highlands and Islands, 1600-1800,” *Rural History* 15 (2004): 9.

²⁰ Dodgshon, “Coping with Risk,” 10.

idea was that the next years' crop would make up the difference from the rested land, though in times of bad harvests, the rest was never collected.

Figure 5.2 below lists the rests, or debts, for shires in Scotland from 1687-89. As the figure demonstrates, it was common for a shire to hold debts from resting in certain years. Fife for example, contained a large amount of agricultural lands, and would likely hold a large amount of debts from resting. After all, agriculture was prone to having annual fluctuations in crop yields, however, the amount of some of these locations stand out and the figures below display how disproportionate some of these debts were. For instance, Orkney and Shetland (Zetland), held a comparable debt to many of the other larger shires in Scotland despite having a population and area that was significantly smaller than many of these other shires. Table 5.1 lists rests for some Scottish shires in 1691. Again, the same pattern emerged with Shetland and Orkney holding a disproportionately higher amount of rests than any of the other shires listed in the table. In addition, the monetary amount of rests had ballooned from what it had been just six years prior.²¹ At this point, some early signs of agricultural stress are already prevalent prior to the Ill Years in Scotland's more marginal lands.

²¹ NRS, E95/50, Lists of rests or debts due by shires and burghs for supply and excise 1 Nov. 1687-1 Feb. 1689, given up by John Oswald and John Drummond, receivers-general, 13 Apr. 1689; See also NRS, E30/49.

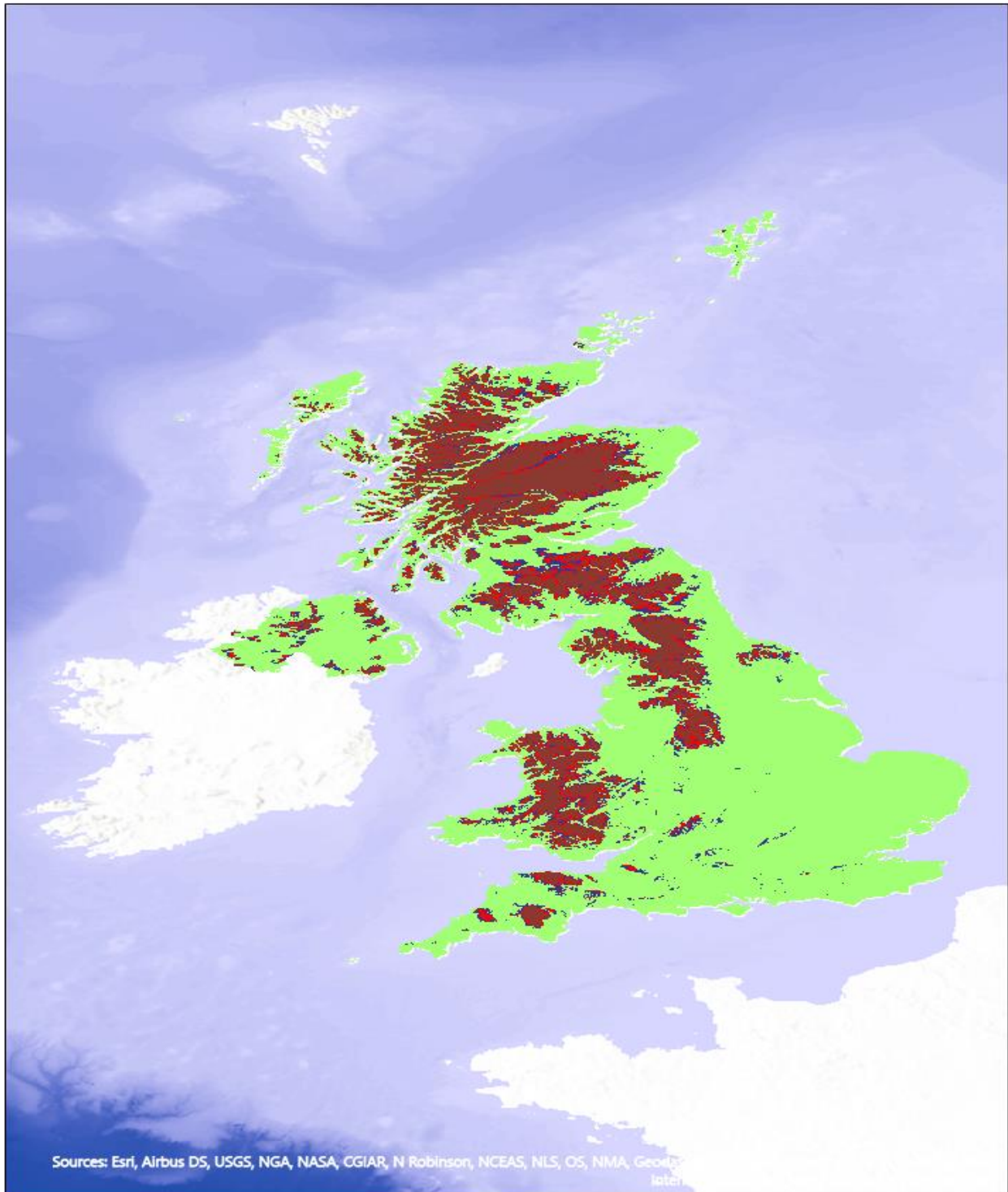


Figure 5.1 Map denoting elevation in Great Britain. Land in shades of brown, blue, and red denote higher elevation and lands.

Sources: Map adapted from Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodastyrrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community, NAS. See comparisons with Parry, “History and Climate,” 326.

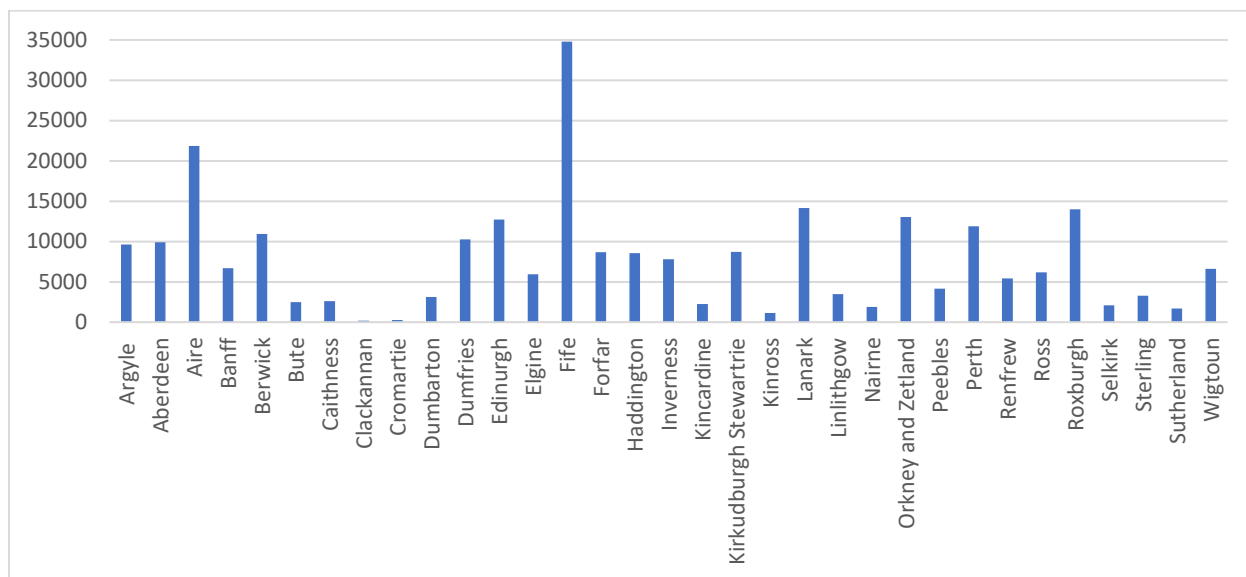


Figure 5.2. List of Debts Due by Each Shire for Excise and Supply 1687-89, in £ Scots.

Source: NRS, E95/50, Lists of rests or debts due by shires and burghs for supply and excise 1 Nov. 1687-1 Feb. 1689, given up by John Oswald and John Drummond, receivers-general, 13 Apr. 1689; See also NRS, E30/49.

Table 5.1 List of debts in each shire 1691

Shire	£	Shire	£
Edinburgh	2523	Cromarty	708
Berwick	3160	Fife	296
Roxburgh	126	Kinross	98
Selkirk	292	Forfair	447
Wigton	248	Banff	2739
Kirksaidburgh	767	Caithness	766
Kinggarden shire	677	Elgin	130
Nairne	822	Orkney and Zetland	19645

Source: NRS, E19/88, List of rests of cess and excise given to Sir James Oswald and James Dunlop [receivers-general] as resting preceding Feb 1691, 17 Feb. 1699.

Another challenge within the structure of Scottish agriculture, which added to agricultural stress, resided with the landowning class of society. T.C. Smout and Alexander Fenton have argued that part of the reason for the limitations put on Scottish agriculture rested with the lairds or landowners and the relative weakness of Scotland's central government. They posited that Scottish land owners were more conservative in their agricultural approach and saw little need to change a system that still produced financial gains and had been doing so for quite some time.²⁵ After all, outside of some of the more marginal lands, like Shetland and Orkney, Scotland saw a pattern of increased agricultural yields for much of the period between 1675-1690 and relatively low grain prices, at least compared to the previous half century. This seems to have been the result of new marginal land being farmed. Some evidence does suggest that some landowners implemented "improvements" to farming like liming and crop rotations, but this only occurred under the control of a few landowners.²⁶

When there was agricultural surplus, the Scottish government encouraged the export of grains, especially within North Seas markets. For instance, during the better agricultural years between 1676-1690, which saw a more stable climate, Scottish merchants regularly sent oats, bere, and wheat from Scotland's east coasts to the Baltic, Norway, Sweden, Holland, France, and even England.²⁷ In 1684-85 for example, Scottish merchants exported 156,624 bols of grain.²⁸ This tied Scottish landowners and merchants into a larger North Seas market exchanging grain surpluses for specie and directly for goods like timber or iron for example. The expansion of the

²⁵ Smout and Fenton, "Scottish Agriculture," 86.

²⁶ Whyte, *Agriculture and Society*, 204, 217-18.

²⁷ Smout and Fenton, "Scottish Agriculture," 76.

²⁸ NRS, E72/1-16, 18-21, Exchequer Records, 1684-85; Whyte, *Agriculture and Society*, 224-8.

grain trade also helped local markets develop, which furthered growth in the Scottish economy until the end of the 1680s.

As periods of grain surplus increased for much of the second part of the seventeenth century, the transportation methods for this surplus provided an additional challenge. Surplus grain needed to be shipped from interior parts of the country, and during lean times, grain needed to move into the country as well, a problem of particular importance during the Ill Years. Scottish roads, when they did exist, were not built for transporting large grain carts. Instead, pack horses were the most adequate means for shipping goods throughout much of the country.²⁹ It was really the coastal communities and those connected to water that could take part in a growing market economy through the grain trade, though many of Scotland's river were still unnavigable for transporting goods.³⁰

Some of this economic and agricultural expansion though was also checked by a lack of specie since low prices for agricultural products in Scotland created little motivation for land owners to invest in their land if the returns would not be significant or immediate, and it was up to the land owner to implement changes. Some movement towards these large scale "improvements" developed during the beginning of the seventeenth century, but the momentum of changes implemented by landholders seems to have been lost during the civil wars and the Cromwell regime.³¹ Additionally, raiding and feuding were still a part of Scottish society in the seventeenth century, and land owners likely saw more power with a greater number of tenants than they did by implementing agricultural changes that could require fewer laborers.³²

²⁹ Whyte, *Agriculture and Society*, 21, 173-4.

³⁰ Whyte, *Agriculture and Society*, 173.

³¹ Whyte, *Agriculture and Society*, 115.

³² Smout and Fenton, "Scottish Agriculture," 86.

The life of a tenant farmer in Scotland was difficult even before the climatic aberrations of the 1690s. Tenant farmers or peasants made up close to three quarters of the Scottish population in the seventeenth century and while there were several levels within the tenant or peasant society, for this work, those who labored the land of a land owner are collectively referred to as tenants.³³ The Scottish system of grain rentals included three larger levels: tenants, land holders, and the crown, though there were many smaller groupings within these levels.³⁴ Tenants worked the land and often held annual or multi-year contracts to work land. They paid a fee to the land holder in exchange for the land, typically in the form of grain. The land holder owned the land and was responsible for paying fees and customs to the crown or parish when that system of collections was functioning. At the top of this system was the crown who collected taxes from tenants on crown lands, through a land tax on privately owned land, through customs duties on trade goods, and by the end of the seventeenth century through hearth and poll taxes directed towards lower classes in Scottish society, as well. Although Scotland was slowly developing a larger market economy, by and large, their reliance upon agricultural products meant that the possibility of financial success and even the survival of one's family depended largely upon the success of agricultural products.³⁵

Lowland tenants typically paid rents in grain, with approximately 30% of an average tenant's harvest given to the land owner who consumed or sold the grain rents, either within Scotland or into a larger North Sea grain trade.³⁶ Upland tenants could also pay rentals in

³³ Smout, *History of the Scottish People*, 135; Rosalind Mitchison *Lordship to Patronage*, 49. For more information on the various levels of Scottish peasants or Scottish society see Smout, *History of the Scottish People*; Rosalind Mitchison, *Lordship to Patronage*, 80-84.

³⁴ Whyte, *Agriculture and Society*, 29-34.

³⁵ Smout, *History of the Scottish People*, 124.

³⁶ Whyte, *Agriculture and Society*, 33-7.

harvested grain, but more frequently did so with animals, animal products, or the most commonly produced item in a region. Lowland tenants retained about 25-30% of the harvest grain as seed for the next year's crop, with the remaining 40% consumed or sold by the tenant. Part of this 40% also went to the church as a teind or offering.³⁷ The tithe or teind was collected from the deed holder of the land, though it was a customary offering. The amount was theoretically based upon a tenth of the harvest going to the church, but in practice it varied yearly based upon the church's needs and was generally agreed upon before the harvest. For instance, in 1617, a Scottish commission was set up to oversee tithes collected at the parish level. The minimum stipend was set at £27 sterling or 80 bolls grain.³⁸ However, the commission had little power and needed regular renewal by the monarch, which proved quite challenging during the seventeenth century.³⁹

The Scottish system of grain rental, which paid rents in services, crop yields, and very occasionally in specie, meant that there was little chance to move between levels of society or provide financial stability if crop yields never increased and prices remained low, especially for tenants. Alexander Fletcher argued in 1698 that the present Scottish land rental system, was a major contributor to the current economic and social problems in Scotland. He claimed that land holders overcharged for the value of the land, which put tenants in more debt.⁴⁰ This rental system overwhelmingly hurt tenants when crops failed, and a bad harvest year could result in multiple bad years if tenants utilized seed crop for food.

³⁷ T. C. Smout, and Alexander Fenton, "Scottish Agriculture Before the Improvers—an Exploration," *The Agricultural History Review* 13 (1965): 73.

³⁸ William George Black, *What are Teinds? An Account of the History of Tithes in Scotland* (Edinburgh: Law Publishers, 1893), 59-65.

³⁹ Black, *What are Teinds*, 74-77.

⁴⁰ Fletcher, *Two Discourses Concerning the Affairs of Scotland*, 36-7, 42-6.

Landlords and tenants handled grain shortages in diverse ways. The land holding members of Scotland consisted of three groups of society: the nobles, the lairds, and the bonnet-lairds or large land-holding peasants. These groups consisted of approximately 5,000 people with fewer than one hundred “great” families owning the overwhelming majority of land.⁴¹ Some of these landowners chose to extract as much as they could from their tenants. For example, Daniel Hamilton put several Bo’ness tenants in prison because they were unable to pay the rests from their rents. Yet, even his own family thought that “ther[e] can be nothing more wicked then this.” James Hamilton could not help but be shocked since Daniel owed him £2,800.⁴² The earl of Breadalbane represented a slightly more concerned land owner by asking his tenants in Glenorchy to make a list of how much food they would need to survive a dearth and made sure that much food was readily available. His compassion only went so far, as he made it known “that they [tenants] are responsible to pay or find credit for it.”⁴³ Anne Hamilton also showed some compassion for tenants that were unable to pay full rents in 1694. In her records for that year she seemed relatively unconcerned with receiving rents from most of her tenants, at least immediately. Yet, her generosity had some limits, as she kicked out one tenant who failed to pay enough in rent, but this tenant was a repeat offender.⁴⁴

Tenants also had a couple of choices when dealing with overbearing landlords or poor growing conditions. This included refusing to pay their rents. A 1698 account of the “fewers and substantiall men in Benderaloch” shows their unwillingness to pay their rents because of poor

⁴¹ Smout, *History of the Scottish People*, 126-128.

⁴² NRS, GD406/1/11021, [James Hamilton of Pencaitland], Edinburgh, to the duke of Hamilton, 10 Nov. 1705.

⁴³ NRS, GD170/629, Letter from Sir John Campbell of Glenorchy, later 1st earl of Breadalbane, to Barcaldine, his chamberlain, 22 Mar. 1697.

⁴⁴ NRS, GD406/1/3972, [David Crawford], Hamilton, to [? the earl of Arran], 10 Oct. 1694.

harvests. Yet, the author of this letter seemed somewhat understanding of their situation given “the deplorable account yow sent me of the country, which I am very greived for.”⁴⁵ This method worked in some cases as the previous example demonstrated, but as Daniel Hamilton showed above, by refusing to pay rent, tenants also risked imprisonment or other similar consequences.

Another option tenants had outside of refusing or failing to pay their rents was to leave the land they were on. Although not a regular occurrence because they often required a letter of mark showing where they came from, it happened frequently enough even before the worst of the 1690s.⁴⁶ For instance, Mungo Williamson of Newtown (Newton), who lost his livestock in the storms from the winter and spring of 1693, decided to leave the lands he rented.⁴⁷ A similar situation occurred with the tenants at Kinneil, who left in 1694 because the weather had been so counterproductive for a sufficient harvest. Daniel Hamilton even noted how he was renting out the same land to new tenants more frequently during the 1690s.⁴⁸ Sometimes this forced landowners to offer concessions, like J. S. Weir, who oversaw several rentals in Newton. Weir argued that to find new tenants for the land, they needed to make the parcels bigger because the land’s quality was too poor to rent.⁴⁹ Other efforts to attract tenants included increasing the time tenants had to work the land, presumably to provide them with more time to pay off their rents. Examples from Panmure increased from four years in 1660 to fourteen years at the start of the 1700s, a result of a lack of tenants because of poor crop yields.⁵⁰

⁴⁵ NRS, GD170/629, Letter from Sir John Campbell of Glenorchy, later 1st earl of Breadalbane, to Barcaldine, his chamberlain, 30 Nov. 1698.

⁴⁶ Whyte, *Agriculture and Society*, 13-4.

⁴⁷ NRS, GD406/1/3856, J. S. Weir, Newtown, to Mr. David Crafoord, Torms, 27 Mar. 1693.

⁴⁸ NRS, GD406/1/3984, Daniel Hamilton, Kinneil, to John Spens, secretary to the earl of Arran, 25 Dec. 1694.

⁴⁹ NRS, GD406/1/3856, J. S. Weir, Newtown, to Mr. David Crafoord, torms, 27 Mar. 1693.

⁵⁰ Smout and Fenton, “Scottish Agriculture,” 81.

Perhaps part of the reason Daniel Hamilton responded so harshly to his tenants in the earlier passage was because he had difficulty finding enough of them. He would not have been alone for in Aberdeenshire, and the uplands especially, there were numerous cases of lands lying waste and land owners desperately searching for tenants.⁵¹ In 1695 Basil Hamilton described the trouble he had finding what he thought were quality tenants because most could not keep up with their rents. Apparently, he was so desperate for tenants that he let the land “to a pack of poor, suttie, ill natured divills,” and he did so at a lower rate.⁵² George Fraser described yet another situation in Scotland with tenants in arrears of rents because of the “badness of the weather and greatness of the storme” which “has hindered the harvest in this countrey.” Fraser explained the difficult choices for his own tenants claiming that if they paid their rents for 1697, they would have had nothing to plant next year. For Fraser this meant that several of his fields remained uncultivated that year because of the lack of tenants or crops to plant.⁵³ Furthermore, a growing number of wasted, rested, or barren fields did little to help the famine and an already weakened Scottish economy.

One last group within Scottish society deserves mention here; the rural poor. This group of society typically consisted of people who had previously been tenant farmers in more rural areas that had considerable arrears, debts, or rests, or it could have been laborers within the cities and Scotland’s few manufacturing areas. For any number of reasons, they met hard times, though this number of poor and itinerant poor grew during periods of dearth and famine. It is likely that much of Scotland’s tenant laborers were close to this boundary and it was crop failures that

⁵¹ Cullen, *Famine in Scotland*, 51-52.

⁵² NRS, GD406/1/7443, [Lord Basil Hamilton], Baldon, to his brother the duke of Hamilton, 8 Apr. 1695.

⁵³ NRS, GD124/15/205, Letter to Robert Allen from George Fraser, 4 Jan. 1697.

pushed them into a state of being poor or being identified as a beggar. The care of this group of society typically fell to the church through voluntary contributions and occasionally a levy passed within a local community.⁵⁴ This system quickly became overburdened in times of significant dearth or famine, and it also failed to look after those who had been punished by the law, including for minor offenses like stealing from want or hunger.⁵⁵

GLIA and Agriculture

One major problem with Scotland's agricultural system, and especially so during the Global Little Ice Age, was that it was highly vulnerable to instability in the climate. Cooler temperatures than the average for the past millennium persisted for much of the seventeenth century and caused considerable damage to Scottish agriculture. For instance, cold winter temperatures could kill livestock directly and made daily life even more difficult. Generally though, cooler temperatures during the growing season were a much greater problem, as they killed crops or reduced their yields greatly, potentially causing subsistence crises.⁵⁶ We can see from figure 5.3 that much of the North Seas World experienced prolonged periods of cooler temperatures during the summer months in the seventeenth century, which played into the destruction of crops during the end of the seventeenth century. Figure 5.4 demonstrates the cooling prevalent in Scotland from 1600-1750, both annually (NCAIRN, top) and by season. Scotland experienced even greater cooling than the average of the North Seas World, especially during the 1690s. In many cases though, cooler temperatures were not the only cause of reduced crop yields. Seasonal variability in moisture and temperature could be just as hurtful as periods of severe cold. A wet spring and dry summer were just as capable of reducing crop production as

⁵⁴ Whyte, *Agriculture and Society*, 40.

⁵⁵ Whyte, *Agriculture and Society*, 41.

⁵⁶ H.H. Lamb, *Climate History and the Modern World* (London: Routledge, 1995), 212.

were cooler temperatures throughout the season.⁵⁷ Many of these conditions were prevalent during the 1690s as detailed in chapter two, but figure 5.5 displays some of this seasonal variability. Note the increased precipitation during the autumn and drier conditions in the springs and summers, especially during the 1690s.

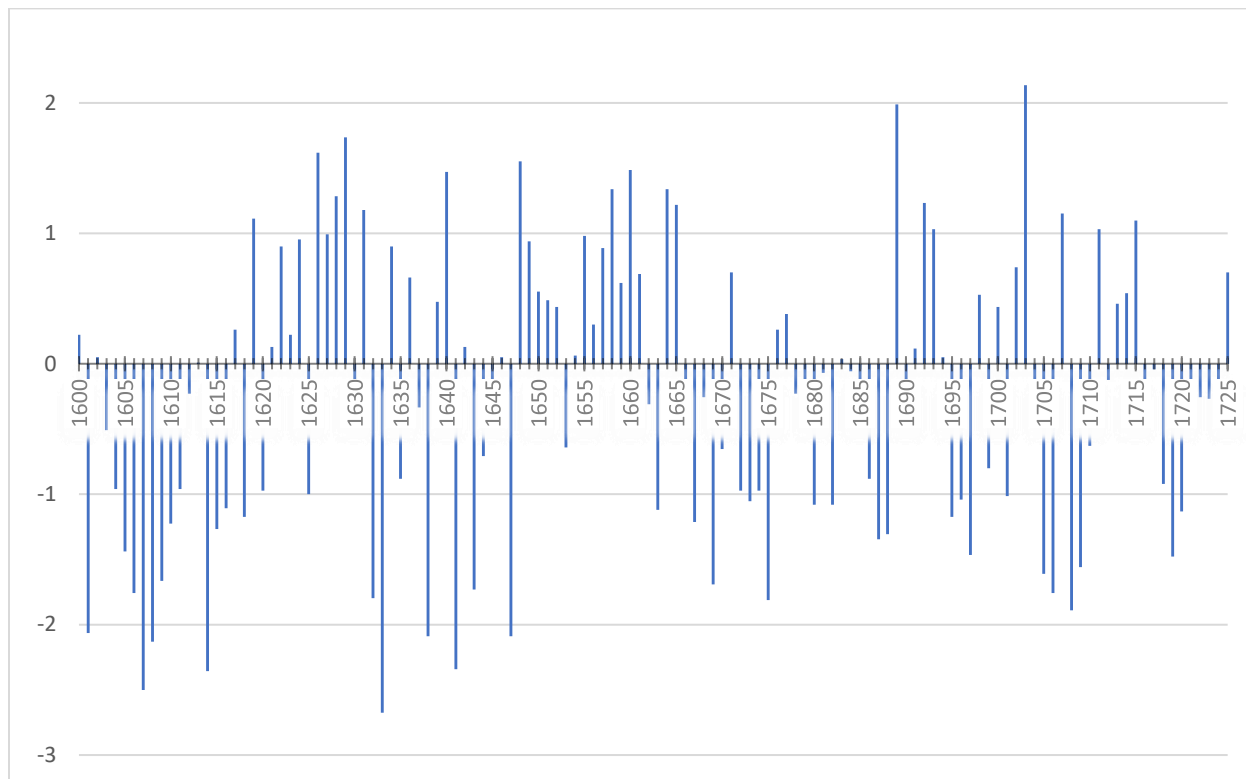


Figure 5.3. June, July, and August temperature departures from the 1961-90 mean covering Northern Europe and the North Seas World (50N-70N).

Source: Data adapted from Jan Esper, Elisabeth D uthorn, Paul J. Krusic, Mauri Timonen, and Ulf Buntgen, “Northern European summer temperature variations over the Common Era from integrated tree ring density records,” *Journal of Quaternary Science* 29 (2014): 487-494; <http://ncdc.noaa.gov/paleo/study/16975>.

⁵⁷ Chapter two discusses the reconstructions that suggest those conditions were prevalent for much of the second part of the seventeenth century, with cold(er) winters, springs, and autumns, but summer temperatures were normal or above average in many cases.

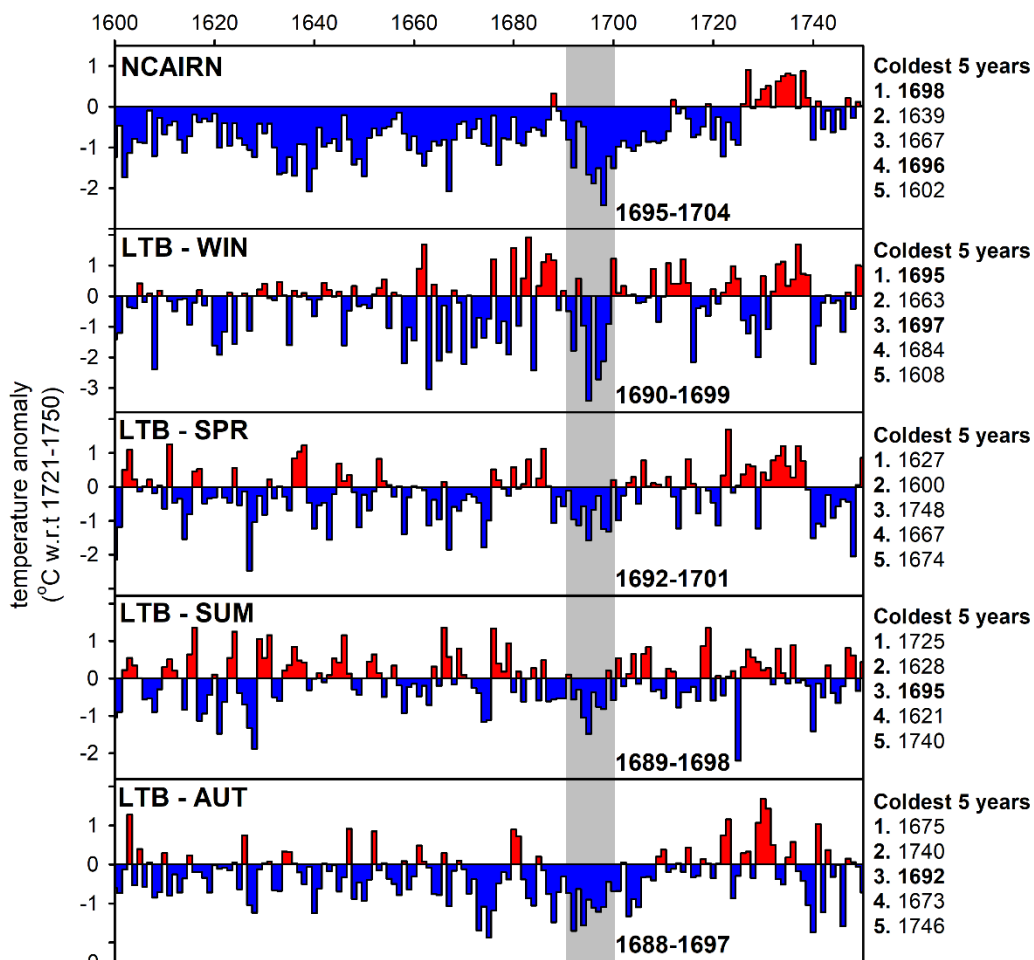


Figure 5.4. Comparison (1600-1750) between NCAIRN (Rydval et al. 2017) and the four temperature seasons relevant to Scotland from Luterbacher et al. (2004). The temperature series are expressed as anomalies with respect to 1721-1750. The coldest decade over the 1600-1750 period is detailed on each panel while the top 5 coldest years are listed on the right. The coldest decade which include parts of the 1690s in each model is in gray.

Source: Rosanne D'Arrigo, Patrick Klinger, Timothy Newfield, Milos Rydval, and Rob Wilson, "The Cold Pulse of the 1690s and the Consequences of Scotland's Failure to Cope," *Journal of Volcanology and Geothermal Research* (Forthcoming).

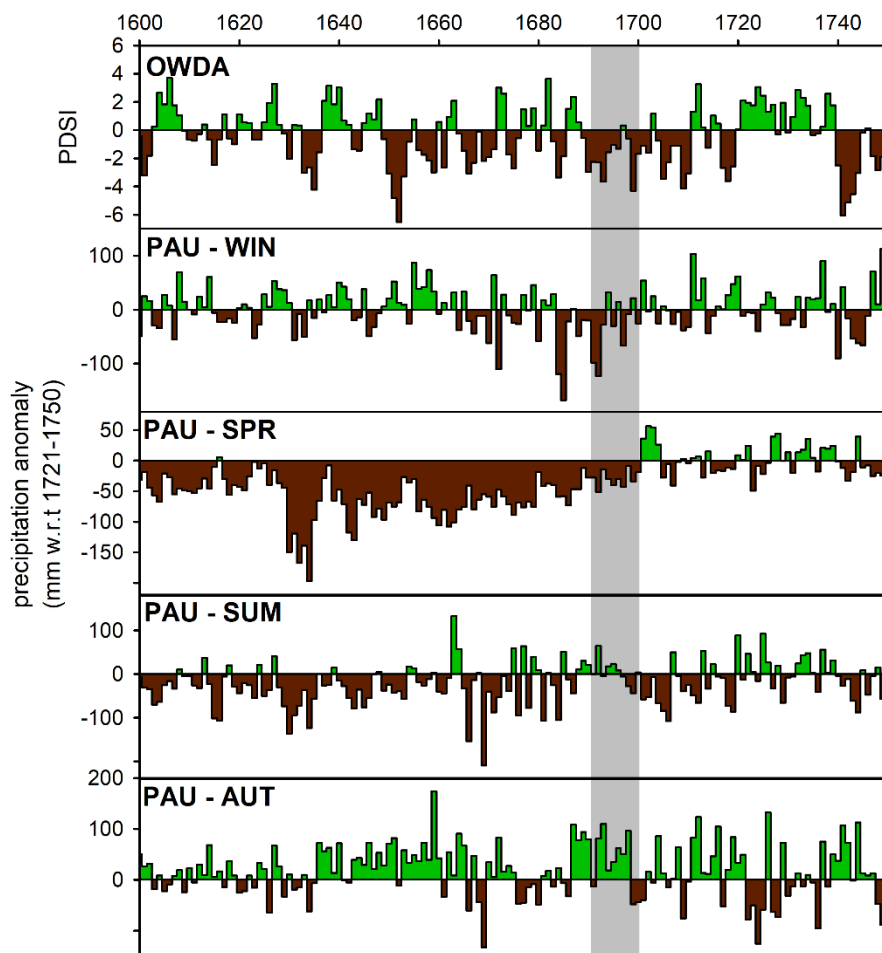


Figure 5.5. Hydroclimate gridded proxies for precipitation in the Scottish region. From top to bottom: June-August scPDSI tree-ring reconstruction (Cook et al. 2015); Season precipitation reconstructions of Winter through to Autumn derived from multi-proxy sources (Pauling et al. 2006).

Source: Rosanne D'Arrigo, Patrick Klinger, Timothy Newfield, Milos Rydval, and Rob Wilson, "The Cold Pulse of the 1690s and the Consequences of Scotland's Failure to Cope," *Journal of Volcanology and Geothermal Research* (Forthcoming).

Crop yields and overall production depended upon favorable growing conditions during planting, the growing season, and at harvest. Anomalies or extremes during any of these periods could have deadly consequences. Because Scottish society relied largely upon oats and bere grown and harvested in the same seasons during the climatic instability of the Global Little Ice Age, crop failure and reduced crop yields were commonplace, especially on a localized level. Michael Flinn's study of Scotland's population history identified at least eight national subsistence crises that had a negative impact on population numbers from the start of the Global Little Ice Age until the end of the seventeenth century; 1571-3, 1585-7, 1594-98, 1621-23, 1635-38, 1648-51, 1674-75, and 1695-99. There were also national-level subsistence crises during the century before in the 1520s, 1550s, and 1560s, however, the eighteenth century really only saw localized scarcity in 1708-09, 1739-41, and 1782-83.⁵⁸ Despite their relative frequency in the first part of the Global Little Ice Age, scarcity and famine occurred much less frequently after 1650 when there was a period of relatively stable grain prices, at least nationally, until the end of the century, with the marked exception of the years 1674-1675 and the late 1690s.⁵⁹ During these periods of dearth and famine, lower crop yields saw increased demand for crops. This, in turn, increased demands for grain imports, where more specie left the country and further weakened an already fragile Scottish economy.⁶⁰ In the second part of the seventeenth century this happened during two periods on a national scale, in at least four of the Ill Years of the late 1690s and again during 1674-5.⁶¹

⁵⁸ Flinn, *Scottish Population History*, 109.

⁵⁹ Flinn, *Scottish Population History*, 151-52, 160. Flinn cited the switch of Scotland to a grain exporter in the 1650s as evidence of this stability.

⁶⁰ Cullen, *Famine in Scotland*, 18.

⁶¹ Cullen, *Famine in Scotland*, 55.

The 1670s and the Famine of 1674-75

While grain shortages and dearth, or periods where groups of society went without, were common during the sixteenth and first half of the seventeenth century, famine, or periods of widespread death from want intensified by disease, only struck during the 1670s and 1690s.⁶² Although death toll estimates indicate that nationally the 1670s were not as severe as the 1690s, in more marginal places mortality equaled levels seen during the 1690s.⁶³ Rev. Robert Law provided an account of these trying years and grain shortages during the 1670s from his parish in Renfrewshire (near Paisley, Glasgow). Law described the harvest of 1673 as being “exceeding rainie and dangerous” because it led to low crop yields. He claimed it was such a bad harvest that the Scottish Parliament debated writing King Charles II that year for help.⁶⁴ In the spring of 1674, Law wrote of more great storms with “snow and vehement frosts” where bodies of fresh water and the soil were continuously frozen, making plowing and tilling impossible until the last days of March. He claimed that “much” sheep, cattle, deer, and other wild animals had died and that “whole families” of people died in the highlands and moors from the cold and lack of food.⁶⁵

That spring (1674), numerous reports out of Scotland depicted the challenging times facing the country. Colin Campbell commented on the heavy snow which had delayed planting describing the “storminess of the season [spring 1674]” and “the badness of... snow.”⁶⁶ In March the Duchess of Buccleuch described the losses of her tenants through the “great frost and snow

⁶² Amartya Sen, *Poverty and Famines: An Essay on Entitlement and Deprivation* (Oxford: Clarendon Press, 1981), 39-41.

⁶³ Flinn, *Scottish Population History*, 7, 156-65.

⁶⁴ Robert Law, *Memorialls or The Memorable Things That Fell Out Within This Island of Brittain from 1638 to 1684* (Edinburgh: A. Constable and Co., 1819 [1695]), 52, 54.

⁶⁵ Law, *Memorable Things of Britain*, 63.

⁶⁶ NRS, GD112/39/120/7, Colin Campbell, Monzie, to the laird of Glenurchie at Edinburgh, 7 Mar. 1674.

that has been as of late.” The tenants had been “sad and dismal” because of this weather and the Duchess claimed those losses had affected many tenants within Scotland and not just her own.⁶⁷ She went on to write about their ongoing struggles telling the letter bearer about the extensive “losse we have suffered these years past.”⁶⁸ The third Duke of Hamilton also commented on the poor harvest of 1674 positing that “the sad condition the last storm[y] winter has putt all our tenants in and this fould harvest is like to make them much worse.”⁶⁹ Stormy and colder weather during planting would have prevented crops germinating and the muddy soils could have delayed planting, conditions which had largely been absent on a larger scale since the 1640s.

The winter of 1674 and 1675 was just as trying. A report from Ettrick Forest, near the Scottish Borders, claimed that a combined 19,480 sheep and cattle died because of the stormy winter. Of this number, 983 froze to death and the others died from what was described as other problems associated with the stormy winter. To help put this in perspective, the number of living sheep and cattle remaining in Ettrick Forest after that winter was 15,070, which meant that over half the sheep and cattle from the area died because of the harsh winter.⁷⁰ Another account from the *Philosophical Transactions* described the wind in December 1674 as “extraordinary,” breaking an obelisk that was two feet thick and uprooting numerous trees. In addition, the author posited that it was very cold during the winter of 1674-75 throughout much of Scotland and pointed out that a Lake in Straberrick which had “never” been known to completely froze over until February did so that December. The author mentioned that this also occurred at Loch

⁶⁷ NRS, GD157/3264, Duke and Duchess of Buccleuch and Monmouth, Whitehall, to Sir William Scott of Harden 1674-1679, 14 Mar. 1674.

⁶⁸ NRS, GD157/3264, Duke and Duchess of Buccleuch and Monmouth, Whitehall, to Sir William Scott of Harden 1674-1679, 28 Mar. 1674.

⁶⁹ NRS, GD406/1/11390, The duke of Hamilton to his nephew the earl of Forfar, 20 Oct. 1674.

⁷⁰ NRS, RH9/17/101, Account of the sheep and cattle that died in Ettrick Forest owing to the stormy winter 1674.

Monar and Straglash at Glencanick among several other unlisted lochs.⁷¹ Rev. Robert Law also wrote that the winter of 1674 was “stormy” with “great winds” and that “victual [was] very dear.” He argued that the harvest was “very evil” because poor weather that spring caused grains to be sowed late, which made it very “green” by harvest time, but even those deficient grains were harvested to avoid starving.⁷² In fact, grain was so scarce, that the Scottish Privy Council requested that grain be imported into Scotland, which had previously been banned in 1671.⁷³ Further evidence of famine during these years included increased mortality from 1673-76 in Peebles, Kirkhill, Inverness, and Aberdeen, with mortality rates from 1675 standing out in several other places as well because of the previous year’s poor harvest.⁷⁴

Agricultural shortfalls and damaged crops saw the price of grain rise by as much as 90% between 1674-6.⁷⁵ Here we see some of the problems of Scotland’s market and subsistence economies coming together. While much of the lowlands and agricultural tenant farmers were able to survive the damaged crops and decreased yields by eating their rentals or stopping grain exports, the increase in grain prices hurt those in marginal areas that relied upon grain markets for subsistence. Much of the famine during these years was felt by the poor and within the more marginal agricultural areas that were better suited for pasturage and limited planting of crops.⁷⁶ What crops were planted in these regions likely suffered more than those in the lowlands and the rising prices of grain limited what they could buy on the market. Their malnourished bodies then

⁷¹ “Extracts of Several Letters Sent to the Publisher From Edinburg, by the Learnd Mr. James Gregory, to Whom they were Written by that Intelligent Knight Sir George Makenzy from Tarbut,” *Philosophical Transactions of the Royal Society* 10 (1675): 307-08.

⁷² Law, *Memorable Things of Britain*, 63, 73-74.

⁷³ Flinn, *Scottish Population History*, 160.

⁷⁴ Flinn, *Scottish Population History*, 156.

⁷⁵ Flinn, *Scottish Population History*, 160.

⁷⁶ Flinn, *Scottish Population History*, 163.

became more susceptible to disease as several accounts from 1675-76 denoted how decreased crops yields led to “many people fall[ing] sick and die; the ast[h]ma, or coch, or cold, with a feavor turns the epidemic disease in toun and country, whereof many dyes.”⁷⁷

George Makenzie’s account from northwestern Scotland reveals some of the problematic patterns emerging from marginal and upland agricultural practices in northwestern Scotland, which may have added to the problems of the 1670s and later. Mackenzie’s land in Loch Broom parish in the far northwest part of Scotland, had sandy soil, which he did not fertilize, but it had been producing well enough, at least in the author’s eyes. Makenzie’s 1675 account demonstrated his knowledge of agricultural ‘improvements’ of the seventeenth century and he was surprised that his crops still produced. He claimed that this was because rain washed down nutrients to the soil on his lands from the surrounding hills, and while this benefitted Makenzie, it meant decreased crop yields for those on higher ground without such a benefit. Makenzie also wrote that in Scotland and especially along the northern coasts, they utilized a “sea wrack” to fertilize the soil, which he claimed initially increased yields. This helps develop the idea that some newer agricultural techniques had made it into Scotland. Yet, in a sign of emerging trouble in these regions, Makenzie wrote that after the soil became used to this technique, it produced much less, especially oats and barley, staples of the Scottish diet.⁷⁸

Documentary sources from some of Scotland’s marginal lands displayed the effects of the changing climate and land overuse on a larger scale during the famine years of 1674-5.

Reports of storm damages in Orkney described the distress and difficulties faced by people in

⁷⁷ Law, *Memorable Things of Britain*, 74, 84; Flinn, *Scottish Population History*, 162-3.

⁷⁸ George Makenzie, “Some Observations Made in Scotland by that Ingenious Knight Sir George Makenzie, Sent in a Letter to Mr. James Gregory, and by Him Communicated to the Publisher,” *Philosophical Transactions* 10 (1675): 396-98.

North Ronaldsay because of the frost and snow and increases in the number of poor are identified in these records as well.⁷⁹ The same scenario occurred in the Isle of Lewis where crops failed between 1675-77.⁸⁰ In western Scotland, Robert Dodgshon (2005) listed tenants that experienced increased difficulties paying rents in Skye, Nether Lonrne, and on the Macleod and Breadlebane estates amongst others in western Scotland occurring in the 1670s, and even continuing on in some places into the 1700s. This also included lands lying waste or rested in the Hebrides and other western isles and we can see similar patterns emerging for much of these marginal lands throughout the second part of the seventeenth century.⁸¹

By 1676, as conditions for crops became less turbulent, crop yields began increasing and famine in the more marginal areas diminished. Nationally, Scotland would see increased grain yields, a growth in grain exports, and an expansion of Scotland's limited market economy, especially in the North Seas grain trade. However, this did not mean that localized problems went away as Law's account provided several detailed events including "great snow" falling in June 1676, along with "violent" frosts in December unlike any he had ever witnessed, which he claimed froze liquors and also birds out of the sky.⁸² By the end of the decade, Anne Hamilton suggested that the country was in a poor condition because of the struggle of Scottish agriculture, although the struggles near her lands and tenants in western Scotland was perhaps also the result of religious conflicts known as the "Killing Times" that saw religious conflict between

⁷⁹ NRS, GD112/39/120/2, James Innes, Penniland, to the Earl of Caithnes, 30 Jan. 1674; Orkney Archive, D14/4/9, Charge against; William Cogle of north Ronaldsay against James Clea of Festron, 1675.

⁸⁰ NRS, GD305/1/152/105, registered discharge of Kenneth earl of Seaforth, 29 Jul. 1680.

⁸¹ Robert A. Dodgshon, "The Little Ice Age in the Scottish Highlands and Islands: Documenting Its Human Impact," *Scottish Geographical Journal* 121 (2005): 325, 327, 331; Robert A. Dodgshon, "Coping with Risk: Subsistence Crises in the Scottish Highlands and Islands, 1600-1800," *Rural History* 15 (2004): 11.

⁸² Law, *Memorable Things of Britain*, 94, 105, 107.

Presbyterian Covenantor supporters and the Scottish government.⁸³ Though Law posited that the harvest in 1679 was especially poor in western Scotland and people would have starved had they not been able to import grain.⁸⁴

Localized Scarcities 1680-95

Much of the next two decades in Scotland also saw periods of bad weather and climatic variability that negatively impacted the rural economy within some regions of Scotland. However, this was much more isolated and regional than the period before and after this. After all, on a national scale, the Scottish grain export trade still saw success up until the 1690s. Additionally, the kinds of weather and their impacts were distinct in these localized scarcities. The mid-1670s and 1690s are well-known for their intense cold and extreme variability, whereas the 1680s and early 1690s saw more impacts from rain and flooding. While the 1680s and even up until the early part of the 1690s had their share of challenges, the climatic conditions were nowhere near as bad as the mid-1670s or latter 1690s.

Recent models and reconstructions of the North Atlantic climate suggest that flooding was more likely during the seventeenth century because of increased stormy activity, and the documentary sources from Scotland support this argument.⁸⁵ The 3rd duke of Hamilton described the damages sustained in the lowland town of Hamilton during the severe floods of 1686, writing that “last night fell so extraordinary a raine that the rivers and banks was never seen greater than they were this morning.... such a flood was never remembered to have been seen by the oldest living here.” The result was “great hurt” to the crops, drowning of

⁸³ NRS, GD406/1/6060, [Anne, duchess of Hamilton] to [her husband, the duke of Hamilton], 27 Sep. [1678].

⁸⁴ Law, *Memorable Things of Britain*, 159.

⁸⁵ Moreno-Chamarro, et al, “Winter Amplification of the European Little Ice Age Cooling by the Subpolar Gyre,” 3-4.

townspeople and animals, destruction of land, houses, and flood walls, and “spoiled corns in the barn.”⁸⁶ The next year the situation seemingly repeated itself as Hamilton wrote that “there was never such floods seen and corns much carried down the watters.”⁸⁷ The “greatest raines” made travel difficult, with “very deep” river crossings causing them to ride off horseback instead of by carriage and forcing them to wait hours at crossings until they were passable.⁸⁸ John Hamilton also commented upon the extensive rains and subsequent flooding in Scotland writing that “for 2 days the waters were so high with rains that I was forced severall times to swim the horses and in one place the water was so rapid that with great difficulty [he crossed].” Another instance saw a night with “with sleet and rain that I never see the like,” which flooded river crossings.⁸⁹ David Scrymgeour, writing from his residence along the eastern part of the River Tay recorded flooding in 1689.⁹⁰

The continuation of intensive stormy conditions made subsistence agriculture challenging at the local level even before the end of the 1690s. During the 1680s, localized lowland crop failures became more common until they erupted on a national level with the disastrous harvest of 1695.⁹¹ Flinn listed mortality increases related to food crises and epidemics in several lowland locations including 1680 (Hamilton and Lanark), 1681 (Aberdeen, Old Machar, Dumfries, and

⁸⁶ NRS, GD406/1/7190, [The duke of Hamilton], Hamilton, to [his son the earl of Arran], 1686.

⁸⁷ NRS, GD406/1/6231, [The duke of Hamilton] to [Anne, duchess of Hamilton], 17 Sep. 1687.

⁸⁸ NRS, GD406/1/6234, [The duke of Hamilton], Anwicke, to Anne, duchess of Hamilton, 24 Sep. 1687.

⁸⁹ NRS, GD406/1/7741, Lord John Hamilton, Hamilton, to the earl of Arran, 5 Dec. 1687.

⁹⁰ NRS, GD224/605/1, David Scrymgeour, Volume containing an account of some memorable things, divided into 3 categories, 'to witt, 1. Changes in the naturall system of the world 2. Changes in the body politicall in the world 3. Changes in one particular kingdome or commone wealth....

⁹¹ Cullen made a similar argument that the climatic changes in localized areas occurred in the 1680s. In addition, Cullen argued that an economic recession from this and the social conflicts beginning in the 1680s.

Montrose), 1685 (Dumfries), and 1688 (Cramond and Midlothian).⁹² Other instances included Robert Thomson who petitioned for remission of his rent in Newmill, near the borders, because of “the great default of corne in the years 1688 and 1689 by the great losses the corns and grounds of that this [place?] sustained with great shakeing winds in the time and the setteing [?] rains that followed.” The harvest those years “produced so late and unseasonable in these parts” that it left nothing to plant with and little or nothing to grind [at the mill].”⁹³ Robert Darloe, caretaker for part of the Hamilton estates, described a pressing need to purchase corn to feed the animals and in multiple accounts detailed the “tempestuous weather” they had that year, which delayed the harvest and quality of hay during multiple cuttings.⁹⁴ Although these account show that regional agriculture faced some challenges, prior to the harvest of 1695, there has not been a national famine in Scotland since 1674-5.

The Ill Years: A North Seas World Food Scarcity and Scotland’s Financial Crisis

By the harvest of 1695, the situation in Scotland rapidly changed. No longer were the effects of climatic fluctuations felt locally as decreased crop yields occurred on a national level. Examples from Kinneil, near the Forth, in 1695 help demonstrate why the Ill Years were so tough for Scottish agriculture. At the start of the year in Kinneil, farmers had endured “a fortnight of most bitter cold weather of frost and snow” making it impossible to venture outside and preventing spring planting.⁹⁵ Later in the year, cattle had to be relocated because there was no grass left to eat as David Hamilton claimed that they “have had such a drought that it hath

⁹² Flinn, *Scottish Population History*, 156; Smout and Fenton “Scottish Agriculture,” 74.

⁹³ NRS, GD26/5/469, Petition by Robert Thomson in Newmill, to Commissioners of the Duchess of Buccleugh [Buccleuch], 13 Dec. 1694.

⁹⁴ NRS, GD406/1/3735, Robert Darloe, Hamilton, to Mr. David Crawford, 27 Jan. 1691; NRS, GD406/1/3744, Robert Darloe, Hamilton, to Mr. David Crawford, 3 Aug. 1691; NRS, GD406/1/3749, Robert Darl[oe], Hamilton, to Mr. David Crawford, 13 Aug. 1691.

⁹⁵ NRS, GD406/1/4011, [David Crawford], Hamilton, to [the earl of Arran], 7 Jan. 1695.

destroyed both grass and coves whereby in all probability many of them will not shear this season, as for our hay we have not a load where we used to have.” To make matters worse, the hay that they had cut started rotting because “the rain is lyke to be as excessive as the heat was.”⁹⁶ In total, Hamilton estimated that they would be lucky to produce half as much hay as the previous year.⁹⁷

The conditions at Kinneil were not unique to that location and occurred in many places throughout Scotland that year (see figure 5.4 and 5.5) as David Scrymgeour, writing near Stirling, described 1695 as having a strong winter with colder temperatures and snow until April, which delayed planting. May too was cold, but July and August were hot and dry, which would have damaged grasses and crops.⁹⁸ These accounts depict why it was so difficult for agriculture during this period. In every part of the growing season, the Scottish climate proved damaging for crops, if not disastrous. While much is made of the cold in Scotland during this period, and it was very cold for some of these years, famine and scarcity occurred outside of these cold periods. What made life so challenging was that the difficult conditions for agriculture changed so frequently and reached such extremes. It was cold one season, hot the next, too much precipitation the season after that, then a drought. In the above examples, each of these occurred in one year. Figures 5.4 and 5.5 display some of these seasonal variation in Scotland, in addition to the increased cold temperatures.⁹⁹

⁹⁶ NRS, GD406/1/3998, Daniel Hamilton, Kinneil, to Lord Basil Hamilton, at London, Kinneil, 12 Jul. 1695.

⁹⁷ NRS, GD406/1/3999, Daniel Hamilton, Kinneil, to the earl of Arran, 14 Jun. 1695.

⁹⁸ NRS, GD224/605/1, David Scrymgeour, Volume containing an account of some memorable things, divided into 3 categories, 'to witt, 1. Changes in the naturall system of the world 2. Changes in the body politicall in the world 3. Changes in one particular kingdome or commone wealth....

⁹⁹ Recent models and reconstructions support these documentary sources as well. See Jürg Luterbacher, et al, “European Seasonal and Annual Temperature Variability, Trends, and

By the end of 1695, harvests in most of Scotland had failed. Cooler and damp conditions had delayed planting and then similar conditions during the harvests damaged many of the remaining crops and decreased yields. Grains were now being imported into Scotland and grain prices within Scotland rose significantly.¹⁰⁰ Figures 5.6 and 5.7 display grain prices from several Scottish regions. In both figures, the price of grains in several lowland regions began to rise significantly beginning in 1695 and continued to stay significantly higher until 1700. In western Scotland, 1695 also began poorly as a longer and colder winter killed livestock, when coupled with a dry summer that left many struggling to locate fodder, both sectors of Scotland's agricultural industry faced grave challenges.¹⁰¹ By the winter of 1695, many in Scotland began to feel the effects of that year's harvest failure.

The harvest failure of 1695 meant that the next years' harvest became even more important, but the harvest of 1696 proved "much worse than the former" and as the second consecutive year of poor conditions throughout Scotland made the situation catastrophically worse.¹⁰² For instance, at Kinneil in August 1696, the ground was "so bad that none would meddle with it."¹⁰³ Much of Scotland saw "very rainie" weather with periods of "playful summer weather" where the "wind [was] always in the east [and] somewhat cold" and "deep snow"

Extremes Since 1500," *Science* 303 (2004): 1502; E. Xoplaki, J. Luterbacher, H. Paeth, D. Dietrich, N. Steiner, M. Grosjean, and H. Wanner, "European Spring and Autumn Temperature Variability and Change of Extremes Over the Last Half Millennium," *Geophysical Research Letters* 32 (2005): 2.

¹⁰⁰ Flinn, *Scottish Population History*, 167.

¹⁰¹ Cullen, *Famine in Scotland*, 40.

¹⁰² NRS, GD3/10/4/1, Papers of Hugh Montgomerie and the Montgomerie Family Hugh Montgomerie, Replies for the Tacksman of the Excise, to the Answers Given in by his Majesties Advocat and Solicitor to the Said Tacksman Petition (1698), 1-2.

¹⁰³ NRS, GD406/1/4128, Daniel Hamilton, Edinburgh, to the earl of Arran, 7 Aug. 1696.

during the harvest season.¹⁰⁴ The harvest was so poor that only imported grain from northern England, Ireland, and Norway could be had for much of the year, and barley and peas sold for what were viewed as outlandish prices of £20 scots per boll.¹⁰⁵ The winter was just as unpleasant with “an extraordinary great storm of frost and snow” occurring in December 1696, which damaged what crops still remained unharvested near Berwick.¹⁰⁶

Some landowners attempted to help their tenants if they could. For instance, John Campbell, who would become the earl of Breadalbane, furnished limited provisions for his tenants’ animals and provided cattle or sheep to eat when it was possible. He hoped that he could obtain salmon and herring from some of his other lands to help provide for his tenants at Taymouth.¹⁰⁷ The future earl of Breadalbane was “afflicted for the poor people in the country, and cannot be at ease till ther be some remedie had.”¹⁰⁸ Yet, a remedy was not to be found, since few had enough resources to help the increasing number of destitute in Scotland as Susan, countess of Dundonald, explained how “this poor country is in a most sad position I believe since ever saw it in a worse. Theirs such a scarcity of both corn and mony.”¹⁰⁹

¹⁰⁴ NRS, GD406/1/6385, [Susan, countess of Dundonald], Belford, to the earl of Arran, 10 Dec. 1696, (Belford near Berwick); NRS, GD224/605/1, David Scrymgeour, Volume containing an account of some memorable things, divided into 3 categories.

¹⁰⁵ NRS, GD406/1/4128, Daniel Hamilton, Edinburgh, to the earl of Arran, 7 Aug. 1696.

¹⁰⁶ NRS, GD406/1/4111, [David Crawford], Belford, to [the earl of Arran], 6 Dec. 1696.

¹⁰⁷ NRS, GD170/629, Letter from Sir John Campbell of Glenorchy, later 1st earl of Breadalbane, to Barcaldine, his chamberlain. Taymouth, *Under the right honorable, the lords commissioners of his majesties treasurer and exchequer, the petition of the tacksman of the island excise humbly showeth*, 6 Jun. 1696.

¹⁰⁸ NRS, GD112/15/66/27, Letter from Breadalbane to Kenloch. Taymouth, 6 May 1696.

¹⁰⁹ NRS, GD406/1/6388, Susan, countess of Dundonald, Edinburgh, to the earl of Arran, 2 Jan. 1696.

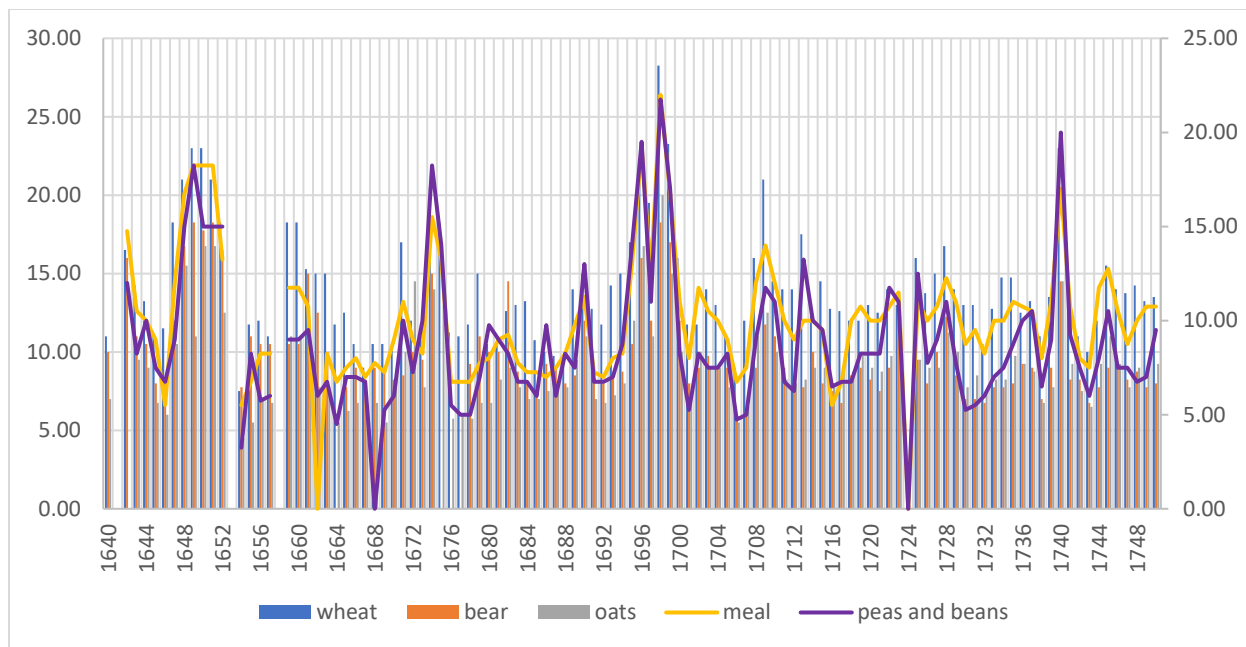


Figure 5.6 Grain Prices £ scots in Edinburgh 1640-1750.

Source: Data adapted from NRS, GD224/132/6.

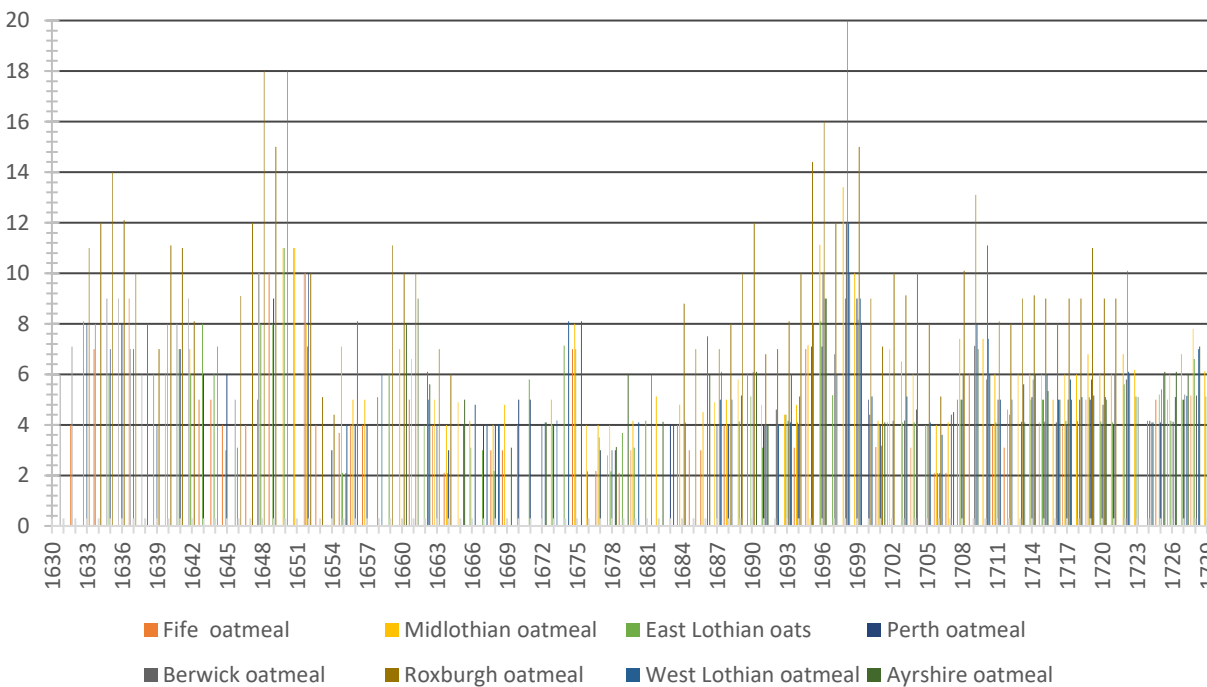


Figure 5.7. Average Oat and Oatmeal prices from several Scottish regions 1630-1730, based upon data from Flinn (1977)

Source: Data from Flinn, *Scottish Population History*, appendix.

While the climatic aberrations of the seventeenth century had a profound effect on the vitality of many in Scotland, the economic toll was another key component. Although the Scottish economy had struggled in the years before the famine conditions of the 1690s, the Ill years served to further this decline. For instance, a report from November 1696 explained the spiral that harvest failures created for the Scottish economy because of, in this case, “very rainie” conditions.¹¹⁸ Additionally, in response to the harvest failures, a large amount of Scottish specie left to purchase victual.¹¹⁹ James Hamilton wrote that over £100,000 sterling was sent out of the country for buying victual from England in 1696 alone because of a “bad” harvest. As in the previous example Hamilton claimed that this contributed to a scarcity of Scottish specie as more and more specie went out of the country for victual without any new specie coming into the country. Hamilton argued that because of this, there would be an even greater scarcity in the following years.¹²⁰ He saw the effects of this first hand as many of his Clydesdale tenants were unable to produce or purchase victual and had become “miserably ill” as a result.¹²¹

The poor harvests also slowed down the Scottish economy as people became more likely to hold onto surplus goods and specie. In Edinburgh in November 1696 little business took place because “the country being extreamly impoverished with the want both of money and victuall, a great part of our harvest specially about the moores not being yet cutt down.”¹²² Several reports denoted the decline and stoppage of brewing during the famine years as these grains became too

¹¹⁸ NRS, GD406/1/4153, Daniel Hamilton, Kinneil, to the earl of Arran, 25 Nov. 1696.

¹¹⁹ NRS, GD406/1/4153, Daniel Hamilton, Kinneil, to the earl of Arran, 25 Nov. 1696.

¹²⁰ NRS, GD406/1/10848, [James Hamilton of Pencaitland], Edinburgh, to [the earl of Arran], 21 Nov. 1696.

¹²¹ NRS, GD406/1/10850, [James Hamilton of Pencaitland], Edinburgh, to the earl of Arran, 5 Dec. 1696.

¹²² NRS, GD406/1/10846, [James Hamilton of Pencaitland], Edinburgh, to the earl of Arran, 10 Nov. 1696.

valuable. For example, James Hamilton noted that as “the dearth of our corn also increases... specially of bear [bere] a great part,” they “will not malt this year [with the harvest] being so very ill.”¹²³ A letter to the Laird of Dougalshown in 1696 stated that people stopped brewing because the dearth caused the price of malted grain to go up, making it too costly to brew.¹²⁴ The poor harvests even disrupted the studies of William Cumming, a student of philosophy at Glasgow. He asked the Linlithgow Presbytery for their continued financial help in his studies “considering the present sad dispensation and common calamitie [sic] of the dearth,” which proved too difficult for his family to help fund him.¹²⁵ Karen Cullen’s *Famine in Scotland* supports the primary source accounts demonstrating how famine and food scarcity created a reduction in specie circulating in Scotland and hindered an already weakened Scottish economy. Cullen argued that since land owners and estates depended upon agricultural yields for profit and specie, the decline in agricultural yields removed a source of specie from those estates, which greatly reduced the circulation of specie within Scotland.¹²⁶ The situation was only made worse as individual merchants and the Scottish government spent large sums importing crops during this period. As Cullen and several Scottish historians have argued, all the aforementioned factors served as a “severe check” to the Scottish economy and sent it into a severe economic depression.¹²⁷

The Scottish government also felt these economic effects, as tax revenues from crown rentals decreased. George McKenzie, a tax collector, or subtacksman, of the northern shires of

¹²³ NRS, GD406/1/10855, [James Hamilton of Pencaitland], Edinburgh, to the earl of Arran, 29 Dec. 1696.

¹²⁴ NRS, GD3/10/4/1, Papers of Hugh Montgomerie and the Montgomerie Family.

¹²⁵ NRS, GD215/1476, William Cumming, student of philosophy at Glasgow, to Linlithgow Presbytery, 1697.

¹²⁶ Cullen, *Famine in Scotland*, 29.

¹²⁷ Cullen, *Famine in Scotland*, 3, 29.

Scotland provided a vivid account from 1697. In his representation and petition to the Lord Chancellor and Commissioners of Treasury and Exchequer, he attempted to explain tax losses due to the famine during the first 6 months of 1697 noting how “there was great scarcity and dearth in most shyres of the kingdom yet the northern shyres hade it to the degree of famine” that was almost unheard of. The poor harvest of barley created this scarcity and made obtaining rents and taxes impossible. McKenzie also argued that the prices of victual had been excessive for some time and that prices that were “very ordinarie” in “the south and west, are excessive in the north.” He lamented that even if people could have afforded any of the prices for grain there was none available. McKenzie also claimed that taxes needed to be put in arrears and allow tenants to pay them back in time because although the “loss of the subtacksman is vast” the end result of collecting taxes now would only increase losses by three times in the future because no one would be left to pay taxes.¹²⁸ McKenzie also allows us to place this in context. Table 5.2 is his record of the losses suffered by the Scottish state in 1697 in what he classified as the “northern shyres.” As this figure demonstrates these areas saw significant agricultural losses.

They were not alone either, as a 1697 petition signed by at least 25 farmers, mainly of the Scott family in Teviotdalehead (Roxburghshire), protested that the state of the country had reduced them to want. They blamed the Scottish climate for this commenting on “the general calamity of the countrie by the blasting and frosting of the corn.” Because of this, “oats are not producing above one boll,” (the amount needed to replant the next year) and the available meal was of inferior quality. Grains were “generaly retaining nothing but the shap[e]... without any kirnell att all and what had any kirnell through frost is altogether unfitt for food and the bread

¹²⁸ NRS, GD26/7/439, Representation and Petition to Lord Chancellor and Commissioners of Treasury and Exchequer, by George Mackenzie [McKenzie], subtacksman of late annexed and additional excise of Northern shires, 1697.

that is made of it lookes and tastes as if it wer blak sandie malt made in bread rather then any thing like bear.” It came as no surprise that these tenants were unable to pay their rents and were “starving and providing food for sowing their grass land,” rather than eating or using grain to pay rentals.¹²⁹ A similar petition in Teviotdalehead on the Buccleuch estates helps put the previous description into financial terms. The petition listed the substantial amount of rests that these tenants had accrued. In 1697, they totaled £104,748 scots and the next year the situation had not gotten much better as the rests and arrears totaled £97,309 scots.¹³⁰

Table 5.2. Agricultural Losses for the Northern Shires of Scotland, 1697

Location (1697)	Amount Due	Paid	Loss
Orkney and Shetland	8787	1633	7148
Caithness	5508	2080	3428
Sutherland	2604	1228	1376
Ross	20304	6447	1376
Inverness	15624	10890	4734
Cromarty	864	749	115
Murray and Nairn	21456	11624	9832
Banff	16092	5151	10941
Aberdeen	65988	28006	37988
Dundee Town	25848	18000	7848
Forfar Shyre	36864	21000	15864
Kinkardy	13086	5325	7761
Total	233019	112121	120892

Source: NRS, GD26/7/439, Representation and Petition to Lord Chancellor and Commissioners of Treasury and Exchequer, by George Mackenzie [McKenzie], subtacksman of late annexed and additional excise of Northern shires, regarding his losses on said tack due to the famine during the first 6 months thereof, 1697.

¹²⁹ NRS, GD224/906/16/11, Tacks and related papers 1688-1702.

¹³⁰ NRS, GD224/906/16/14, Tacks and related papers 1688-1702.

The debts from rests and scarcity of specie became so bad that by 1697 specie “truly is a rare commodity now here for I never saw such a poverty as here” as Scotland’s rural and North Seas economy failed.¹³³ Two years later, tenants in Kintyre in Argyll and Bute were forced to pay off their rests and debts through labor because they had no coins to pay their debts.¹³⁴ Andrew Fletcher’s *Two discourses concerning the affairs of Scotland* posited that foreign trade was the only way to get out of the “present miserable and despicable condition” since Scotland was “exhausted of money by a three years scarcity next to a famine.”¹³⁵ Yet, conducting that trade proved difficult, as the town of Borrowstounness demonstrated. In explaining the decay of their town, contemporaries mentioned the “present scarcity,” although this seemed to cap off a series of ongoing problems. In their declaration the townspeople claimed that more than half of the ships in their harbors belonged to Hollanders and other foreigners, with most of the trade in the town and in their ports belonging to others from within the North Seas World. The coal that they did trade was “near worn out and that which remains is so decayed that the proprietors thereof are not able to keep their work going; so that in a short time there will be a total decay of coal and the place quite deserted and depopulate, such as many burgs on both sides of the River Forth, whose trade was more considerable than ours.”¹³⁶

After the first few years of bad harvests and specie shortages, observers at the time claimed that the ongoing scarcity and economic hardships were unprecedented in recent

¹³³ NRS, GD406/1/6390, [Susan, countess of Dundonald], Edinburgh, to the earl of Arran, 7 Jan. 1697.

¹³⁴ NRS, GD112/39/179/3, Dugall Campbell, Ardmadie, to Breadalbane, 14 Oct. 1699.

¹³⁵ NLS, Andrew Fletcher, *Two Discourses Concerning the Affairs of Scotland, Discourse 1* (1698), 12,19.

¹³⁶ NRS, GD406/1/6486, A printed “Representation for the Town of Borrowstounness Humbly offered to the Commission for Setling of Trade,” declaring that their condition is far worse than as described by Linlithgow and asking that their customs books may be examined to prove this [22 Mar. 1699].

memory. Daniel Hamilton claimed that “there was never such difficulty of getting money since I began the world nor greater hardships for the people to live in it this 300 years, there being a general famine through the whole countrie for want of victual.” This was caused by “could [cold] weather a gray frosts of which we had plentie the first three weeks of july almost every night.”¹³⁷ Mary Campbell (Caithness), Countess of Breadalbane, who controlled both lowland and highland farms described 1697 as having “cold misty weather such as the oldest people alive hath not seen.”¹³⁸ George Fraser, chamberlain for the earl of Mar, writing from Kildrummy near Aberdeen, claimed that the harvesting of many crops throughout Scotland had been delayed because of the intensity and frequency of storms and that “ther was never such a year seen in this countrye be any that is alive.”¹³⁹ The effects of this famine were widespread as another petition by Sir John Shaw and Hugh Montgomerie, merchants in Glasgow from 1697 called the current famine “unforeseen.”¹⁴⁰ As bad as these accounts make the conditions up to 1697 seem, by this point, the worst of the famine was yet to come.

The Height of the Ill Years

Just for the second part of the seventeenth century alone, hundreds of documents in the National Records of Scotland describe grain scarcities and famine conditions. It is astonishing how many more documents came from 1698 than from any other year. It was a devastating year for the Scottish harvest and made life even worse for those who had already been suffering through years of scarcity. Miloš Rydval and Rob Wilson’s reconstruction of summer temperatures (July and August) in Scotland helps put into perspective some of the descriptions of

¹³⁷ NRS, GD406/1/4128, Daniel Hamilton, Edinburgh, to the earl of Arran, 7 Aug. 1696.

¹³⁸ NRS, GD40/2/7/73, Countess of Breadalbane to Lady Lothian, 27 Dec. 1697.

¹³⁹ NRS, GD124/15/205, Letter to Robert Allen from George Fraser, 4 Jan. 1697.

¹⁴⁰ NRS, GD3/10/4/1, Papers of Hugh Montgomerie and the Montgomerie Family, *The petition of Sir John Shaw and Hugh Montgomerie Merchants in Glasgow*.

these documentary accounts. They posited that 1698 was one the coldest summers in their 800-year record with a 2.38 °C departure from 1961-90 averages (1696 was also significantly cooler at 1.84 °C below average).¹⁴¹ Basil Hamilton's account of 1698 synthesizes the interconnection between the climate, agriculture, and the Scottish economy, writing that because of the cold and damp conditions the harvest of 1698 was "the worst harvest here that was seen, and this is like to be the heaviest [?] year to the country that has been yet." He "really think[s] what its manufacturing of our poor and paying of the publick burdens, this country shall be quite ruined."¹⁴²

Like the previous two years before, growing conditions in 1698 started out poorly. David Crawford, the secretary to the Duchess of Hamilton, claimed that "the whole country is in a bad condition... all things here are very backward, I never saw worse weather in January for frost and snow which looks like a plague for in Alendale and Leomahag they have no fother [fodder] for the beasts that labours the ground has no seed to sow what is labored. They have had a very bad years and this looks worss then any the Lord pitie it."¹⁴³ As Crawford noted, the previous years of poor growing conditions further limited the available seeds for planting. Yet, for Crawford, there was no doubt that the climate was to blame for this state of the country as much of the planting season saw, "unseasonable... storms and cold we have had here since the memory of man."¹⁴⁴ Agricultural conditions failed to improve during the growing season. Daniel

¹⁴¹ M. Rydval, N. Loader, B. Gunnarson, D. Druckenbrod, H. Linderholm, S. Moreton, C. Wood, and R. Wilson, "Reconstructing 800 Years of Summer Temperatures in Scotland from Tree Rings," *Climate Dynamics* 49 (2017): 10.

¹⁴² NRS, GD406/1/6439, [Lord Basil Hamilton], Hamilton, to his brother [the duke of Hamilton], 10 Oct. 1698.

¹⁴³ NRS, GD406/1/4245, [David Crawford], Hamilton, to the earl of Arran, 30 Apr. 1698.

¹⁴⁴ NRS, GD40/9/113, Letter from Lady Caithness, Taymouth, to her sister, the Countess of Lothian, 13 Apr. [16]98.

Hamilton claimed that “we hitherto have had the worst season that any living ever saw being extremely cold and dry.” On June 4 snow fell and several of the hills near Hamilton had retained snow on them through June. With those conditions, it was no surprise when Daniel Hamilton wrote “our crop is generally bad and late and in both these respects worse than ever in our age.” Much of the ground was barren, which also included fruits and smaller garden vegetables, and “we cannot tell whether to complain of scarcity or dearth.” Unless conditions changed quickly, they “are still expecting worse.”¹⁴⁵

Relief never came as the harvest that fall was no better. In October, the country was “knee deep of snow and hard frost, and the corn’s not halfe cutt down.”¹⁴⁶ These were rather unusual conditions as James Hamilton commented on the apparent early snowfall claiming that “the frost [and snow] is this day also great as if it were December or January.” As a result of those conditions, the harvest was “very late” and “generally a very scarce crop,” which created even higher grain prices.¹⁴⁷ Multiple reports from 1698 commented upon the poverty and starvation throughout Scotland that saw people with found dead along roadsides.¹⁴⁸ Andrew Fletcher cited the bad seasons of the last four years as the cause of the current famine and posited that there were “many thousands” in Scotland that were dying for want of bread or of grains to plant. He was concerned that the famine conditions would soon turn into a plague if the Scottish Parliament did not intervene.¹⁴⁹

¹⁴⁵ NRS, GD406/1/4344, Daniel Hamilton, Kinneil (east/central), to William Hamilton of Wishaw, 20 Jun. 1698.

¹⁴⁶ NRS, GD406/1/4268, [David Crawford], Hamilton, to the duke of Hamilton, 24 Oct. 1698.

¹⁴⁷ NRS, GD406/1/10886, [James Hamilton of Pencaitland], Edinburgh, to the duke of Hamilton, 29 Oct. 1698.

¹⁴⁸ NRS, GD406/1/6445, [Lord Basil Hamilton], Edinburgh, to [the duke of Hamilton], 26 Nov. 1698.

¹⁴⁹ Fletcher, *Two Discourses Concerning the Affairs of Scotland*, 2.

One commentator summarized Scotland's position at the end of 1698 as "a most calamitous country for scarcity of mony and grain and if God send us not some releife the next year is impossible we can subsist a year longer in all probability."¹⁵⁰ Just as in the previous year, commentators at the time could not remember worse conditions for crops or the country. David Crawford wrote that "such bad weather and a bad cropt as is just now here as was never seie. We have constant rains and high cold winds, which with the thrie last bad years will quit[e] ruin this country."¹⁵¹ Basil Hamilton expressed disbelief over the condition of the country in two of his accounts at the end of 1698. He pointed to the climatic fluctuations and poor harvests as the cause of this, mentioning that this was "the coldest weather" with frosts that damaged much of the grains that remained unharvested. Hamilton posited that it appeared like a famine to him and summed up his account by stating "this is the state of our nation... a people in a poor condition."¹⁵²

As in the rest of the country, 1698 was a rough year for many in Scotland's Western Isles. Martin's account of the Western Isles of Scotland provided a similar picture from the Isle of Lewis and Skye. Martin highlighted the shorter and poorer agricultural climate in the western isles compared to the Scottish mainland, emphasizing the cold, moist air, with more snow and severe frosts. In general, they had more labor intensive sandy soils, which when manured by seaweed were "very fruitful in corn until the late years of scarcity... and bad seasons."¹⁵³ His general opinion of the western isles was that life was poor both in quality and financially, and

¹⁵⁰ NRS, GD406/1/10889, [James Hamilton of Pencaitland], Edinburgh, to the duke of Hamilton, 22 Dec. 1698.

¹⁵¹ NRS, GD406/1/4269, [David Crawford], Hamilton, to the duke of Hamilton, 3 Oct. 1698.

¹⁵² NRS, GD406/1/6442, [Lord Basil Hamilton], Holyroodhouse, to [the duke of Hamilton], 15 Nov. 1698.

¹⁵³ Martin, Martin, *A Description of the Western Islands of Scotland* (London: 1703 [1706]), 2-3, 30, 74, 139-141, 172. Martin claimed the frosts would also kill many of the eel and trout.

noted that times had been very tough for many recently.¹⁵⁴ Much like in Shetland and Orkney, the famine of the 1690s hit the Western Isles, especially the Isle of Lewis, exceptionally hard, with Martin noting that it killed many.¹⁵⁵

Martin left no question as to the cause of the Western Isles' problems stating that "since the great change of seasons, which of late years is becoming more piercing and cold" the growing season is "becoming retarded."¹⁵⁶ The recent shift in climate caused a delay in the growing seasons, which resulted in years of bad harvests and caused a dearth in articles of subsistence. In the case of Isle Tire, Martin claimed that overuse, likely a lack of rest or manure, caused the failed grain production, which had been "fruitful of corn."¹⁵⁷ The famine was especially hard in the northwest isles with some places losing over 100 cattle resulting in some people surviving solely on whales that had washed ashore.¹⁵⁸ Martin claimed that 40,000 people on the western isles wanted employment because of the lack of agricultural production and many of the poor were forced to leave and seek subsistence elsewhere as wage laborers.¹⁵⁹ In the Western Isles, climate was the main culprit, but it had some help as Martin claimed that spotted fever recently appeared. This agrees with the arguments of Cullen, Flinn, and several other historians of famines in Scotland, that although starvation was a very real scenario for some during these famine periods in Scotland, the real killer was disease that struck the already weakened bodies and immune systems suffering from malnutrition.¹⁶⁰

¹⁵⁴ Martin, *Description of the Western Isles*, 337.

¹⁵⁵ Martin, *Description of the Western Isles*, 14.

¹⁵⁶ Martin, *Description of the Western Isles*, 76.

¹⁵⁷ Martin, *Description of the Western Isles*, 267.

¹⁵⁸ Martin, *Description of the Western Isles*, 337, 269.

¹⁵⁹ Martin, *Description of the Western Isles*, 336, 341-342.

¹⁶⁰ Cullen, *Famine in Scotland*, 19; Flinn, *Scottish Population History*, 160-70.

Despite having some strategies and adaptations to famine, the highlands, seemed to suffer greatly as well. John Campbell wrote that “desolation is universal in the Highlands, Lord help it.... The weather is so tempestuous that there is nather meall nor men can be sent up to yow till it setle[.] make what shift you can till then.”¹⁶¹ Macentoshe of Torcastell described living with famine in the highlands in 1698.¹⁶² Although he described conditions within all of Scotland, Robert Sibbald’s 1698 *Provision for Poor in Time of Dearth and Scarcity* frequently looked to the highlands for famine solution, because he claimed that this area was more prone to limited harvests. For example, Sibbald posited that highlanders often drank water mixed with oats as a “restorative,” he provided a list of other edible “wild” plants and meats, outside of cattle, and finally, he suggested “bloodletting” or in this case drinking animal blood.¹⁶³

Some of his more sage advice included living on vegetables and root crops when grain and legumes were scarce, citing people in the Indies as proof that this could be done.¹⁶⁴ Other solutions included the eating of hollow stalks of the “garden Angelica” or wild celery as they did on Faroe, and he also claimed that cats were “esteemed very good meat” in Italy, although he never described his own feelings on this subject.¹⁶⁵ He also tried to provide some hope in demonstrating how this was not the first time a dearth occurred citing that Scots ate the root of the silver-weed or Mas-corn boiled in milk, which he claimed were like parsnips, as a solution to

¹⁶¹ NRS, GD170/629, Letter from Sir John Campbell of Glenorchy, later 1st earl of Breadalbane, Taymouth, to Barcaldine, his chamberlain 2, 23 Mar. 1698; Also mentioned arresting Macgregor “the thief.”

¹⁶² NRS, GD158/1104, Macentoshe of Torcastell to Marchmont, Inverness, 4 May 1698.

¹⁶³ NLS, Robert Sibbald, *Provision for Poor in Time of Dearth and Scarcity* (Edinburgh: Watson, 1709 [1698]), 8, 9-14, 16.

¹⁶⁴ NLS, Sibbald, *Provision for Poor in Time of Dearth and Scarcity*, 5-6.

¹⁶⁵ NLS, Sibbald, *Provision for Poor in Time of Dearth and Scarcity*, 9, 17. (Sorry Ross).

the “great scarcity” in 1674.¹⁶⁶ While Sibbald’s work had good intentions and may have helped in some situations, it was really only suitable for elites.

By 1699, Scotland needed an abundant harvest to recover from famine, but 1699’s harvest offered little relief. In January 1699, with much of the grain at Hamilton still standing, Basil Hamilton claimed that Scotland was a “sad and broken country” because of the several bad seasons it suffered.¹⁶⁷ With the recent poor harvests “the condition of the shire of Clidsdale is so bad that the poor are dying every day by the dykesides and on the highway for mere want.”¹⁶⁸ This was not an isolated incident either as tenant farmers and their families died or left their lands, which further added to the grain shortages as fields sat barren. In some areas it was so bad that “the inhabitants of that place [Bo’ness] are resolved altogether to neglect ther trade” and stopped farming.¹⁶⁹

The earl of Ruglen described the “great disorder and... frequent tumults on the account of our great scarcity.” In St. Andrews, people “broke up all the houses where they suspected [any] kind of victual would be found and seized it.” Ruglen claimed this also happened in Dundee and was representative of the “lamentable condition the country is in.”¹⁷⁰ The events of 1699 led David Crawford to argue that “the future happynes, or misery of poor Scotland is at the stake.”¹⁷¹ Crawford was right, as the famine in 1699 even made it difficult to resupply the ill-fated Darien

¹⁶⁶ NLS, Sibbald, *Provision for Poor in Time of Dearth and Scarcity*, 8.

¹⁶⁷ NRS, GD/406/1/6455, [Lord Basil Hamilton], Hamilton, to [the duke of Hamilton], 18 Jan. 1699.

¹⁶⁸ NRS, GD406/1/4402, [David Crawford], Edinburgh, to the duke of Hamilton, 8 Jun. 1699.

¹⁶⁹ NRS, GD406/1/4401, James Hamilton to the duke of Hamilton, 13 Jun. 1699.

¹⁷⁰ NRS, GD406/1/6368, [The earl of] R[uglen], Edinburgh, to the duke of Hamilton, 23-25 Mar. 1699.

¹⁷¹ NRS, GD406/1/4243, [David Crawford], Hamilton, to [the duke of Hamilton], 5 Apr. 1699.

expedition, though they were not short of volunteers to leave Scotland.¹⁷² Times proved difficult even for those who had a higher social standing within Scotland as the Earl of Tullibardine wrote of “the late bad years” which ruined the interests of many land holders in western Scotland and put the entire country in a “sad condition... with the ill years and too great publick impositions.”¹⁷³

Creating a Famine: Scotland’s position in the North Seas World

There have been many efforts to determine why Scotland endured famine during the 1690s. Writing during the famine, Hugh Montgomerie blamed the unusual climate when he attempted to explain why this harvest failure was so devastating and why so many people in Scotland were struggling during the first years of scarcity. He argued that Scotland’s “extreme dearth” began in September 1695 since the “two hardest months of September and October [1695] proved so bad and unseasonable, and the cropt [sic] so defective over the whole kingdom that the nation was generally alarmed with apprehensions of a scarcity and famine.”¹⁷⁴

While climatic aberrations created many problems for Scots during the 1690s, and likely kicked off many of the problems, the structure of Scottish society and agriculture, and actions by the Scottish government certainly did not help improve the situation. In fact, in several instances, they may have made the situation worse. For example, in January 1695 a proclamation banning the importation of cattle and salt beef from Ireland was announced effective in March 1696.

While it was quite common for the Scottish Parliament or the Scottish Privy Council to ban most

¹⁷² NRS, GD406/1/4383, The earl of Panmure, Edinburgh, to the duke of Hamilton, 2 May 1699; NRS, GD406/1/4415, The marquis of Tweeddale, Edinburgh, to [the duke of Hamilton], 15 Jun. 1699.

¹⁷³ NRS, GD406/1/4410, The earl of Tullibardine, Edinburgh, to the duke of Hamilton, 26 Jun. 1699.

¹⁷⁴ NRS, GD3/10/4/1, Papers of Hugh Montgomerie and the Montgomerie Family, Hugh Montgomerie, *Replies for the Tacksman*, 1-4.

foodstuffs from Ireland during the second part of the seventeenth century, since it followed the mercantilist ideas of the seventeenth century and Scottish efforts to increase exports, the timing and reinforcing of this legislation could not have been worse.¹⁷⁵

Parliament had been largely removed from implementing changes into Scottish agriculture for much of the seventeenth century, which contributed to the continuity of Scotland's agricultural system. By the end of the century, the Scottish Parliament became much more active and much of its legislation directed towards agriculture would have helped improve yields. In 1695 for example, it passed a series of acts allowing for more enclosure and "improvement" of land. These acts protected trees from domestic animals, which would have set up wind stops and prevented erosion, they also attempted to improve roads, drain land, and encouraged turning unused land into farmland.¹⁷⁶ While this legislation would have been advantageous for many Scottish farms, it was not yet practiced widescale and the timing of the legislation did little to prevent the famine beginning later that year.

Perhaps the most infamous decision and poor timing of a bill by the Scottish Parliament during this period was the passing of the 1695 "Act encouraging the exportation of victual" more commonly referred to as the "Corn Act."¹⁷⁷ William Paterson, a founder of the Bank of England and member of the Company of Scotland, was keenly aware of the economic situation in Scotland at the end of the seventeenth century and provided a rather vibrant commentary of the act and its ramifications. Since the national price of grain was low for much of the second half of the seventeenth century, the Scottish Parliament encouraged the exportation of grain in 1695 by providing bounties for grain exports, likely attempting to expand Scotland's economic

¹⁷⁵ NRS, RH14/459, Proclamation; import of salt beef from Ireland prohibited, 22 Jan. 1695.

¹⁷⁶ Whyte, *Agriculture and Society*, 97, 100-106.

¹⁷⁷ See Records of the Parliaments of Scotland to 1707, 17 Jul. 1695, <http://www.rps.ac.uk/>.

power within the North Seas World through the grain trade. Paterson posited that the Corn Act epitomized a situation which encouraged famine by “idleness” and the export of grains, rather than storing them.¹⁷⁸ He decried the Corn Act claiming that because of the poor harvest of 1695, all of the grain that had been exported from Scotland was then bought back at two or three times the original price.¹⁷⁹ Paterson argued that £400,000 sterling was spent on grain during the crisis and double that amount was lost through storm damages and population decline, making the total damages for famine of 1690s at £1,200,000 sterling.¹⁸⁰ This was a staggering amount for an already struggling Scottish economy to expend and drew the ire of many. Yet, most contemporaries agreed that importing grain was ultimately a far lesser cost than letting the population starve.¹⁸¹

The grain Scotland attempted to import rose in price because the extreme climatic fluctuations that included colder temperatures and excess precipitation that were so prevalent in Scotland also affected the European continent where Scotland, and much of northern Europe, turned to when it needed grain. During times of agricultural need, Scotland would generally turn to the Baltic and Scandinavian countries, and occasionally it would look to France and England. Because most of those countries also suffered during the Ill Years, this limited the grain market and increased prices. For instance, cold and wet conditions in much of France created decreased harvests in 1691 and 1692. This culminated in a famine in 1693-94 with 1,300,000-1,500,000 people dying, or between 6-10% of the French population. Although part of the cause of the

¹⁷⁸ William Paterson and Saxe Bannister, *The Writings of William Paterson ... Founder of the Bank of England, and of the Darien Colony* Vol. 1 (London: Judd & Glass, 1859), 36.

¹⁷⁹ Paterson, *Writings*, Vol. 1, 56, 234.

¹⁸⁰ Paterson, *Writings*, Vol. 1, 35.

¹⁸¹ NRS, GD3/10/4/1, Papers of Hugh Montgomerie and the Montgomerie Family, Hugh Montgomerie, *Replies for the Tacksman*, 4.

famine was the result of poor economic policies and a lack of social structures to prevent famine, climatic aberrations played an influential role.¹⁸² In addition, poor growing conditions saw Finland suffer through famine between 1694-97 with yields declining by close to half their normal output and the population declining by 25-33%. In the Baltic regions of Estonia, and what would become Latvia, the same conditions occurred causing a population decline near 20%.¹⁸³ Sweden suffered similar conditions, losing close to 100,000 people from 1694-97, and Norway also experienced famine in 1695-96.¹⁸⁴ In addition, there were food riots in Spain in 1699 and Denmark suffered increased mortality in 1699 and 1700 after a “very poor” harvest.¹⁸⁵ All of these areas also suffered from decreased crop yields in several of the years on either side of the famine and the large geographical spread of these countries helps demonstrate the adverse effects that climatic fluctuations had on crop yields during this time.

Since many of their typical sources for grain imports within the North Seas World were unavailable, the Scottish government and Scottish merchants turned decisively to English and Irish grain imports during the two major famines in the second part of the seventeenth century (1674-76 and 1695-1700).¹⁸⁶ Even though they shared the same island, Scotland and England, had drastically dissimilar experiences with the climatic aberrations of the 1690s. England did not suffer any major famine during this period, though it did have some scarcity during the 1690s,

¹⁸² Cullen, *Famine in Scotland*, 20-21; Ladurie, *Times of Feast, Times of Famine*, 68-70, 295-98.

¹⁸³ J. Neumann, and S. Lindgrén, “Great Historical Events That Were Significantly Affected by the Weather: 4, The Great Famines in Finland and Estonia, 1695–97.” *Bulletin American Meteorological Society* 60 (1979): 775–787; See also Eino Jutikkala “The Great Finnish Famine in 1696–97,” *Scandinavian Economic History Review* 3 (1955): 48-63; Mirkka Lappalainen, “Death and Disease During the Great Finnish Famine 1695–1697,” *Scandinavian Journal of History* 39 (2014): 425-447.

¹⁸⁴ Cullen, *Famine in Scotland*, 20.

¹⁸⁵ Cullen, *Famine in Scotland*, 20-21.

¹⁸⁶ Cullen, *Famine in Scotland*, 74.

including several years where the harvests were described as “poor” or “bad.”¹⁸⁷ 1698 and 1699 were especially trying, as the English government even stopped exporting grain to Scotland in 1699 because of its own poor harvests, much to the chagrin of several Scottish commentators at the time.¹⁸⁸ England was suffering through lean years, but the reality was that conditions in England were better than in Scotland, even during England’s years of scarcity. For instance, late in 1698, Archibald Hamilton complained of the “scarcity [in] the countrie [Scotland]” and since hay and oats were so dear, it was cheaper to send his horses from Glasgow all the way to London and stable them there than it was for them to remain in Scotland.¹⁸⁹ So while times may have been tough for some in England during the Ill Years, it was nowhere near as trying as it was in Scotland.

Several seventeenth-century contemporaries and subsequent historians have attempted to explain why famine did not occur in England (and Ireland) during this time. Although looking at the situation retrospectively from the 1700s, Paterson argued that Scotland’s unpreparedness for a famine showed poor judgement because “there is hardly any country in Christendom more subject to uncertain seasons than this kingdom [Scotland].” Knowing this, he found it odd that there was no national project for preventing famine or helping the poor during these trying times.¹⁹⁰ Despite Paterson’s claim, there were some measures in place to help prevent scarcities from turning into famines. Typically, this responsibility fell to the church through contributions from parishioners and the system of poor laws.

¹⁸⁷ Cullen, *Famine in Scotland*, 24.

¹⁸⁸ NRS, GD3/10/4/1, Papers of Hugh Montgomerie and the Montgomerie Family, Hugh Montgomerie, *Replies for the Tacksman*, 1-4; Cullen, *Famine in Scotland*, 25.

¹⁸⁹ NRS, GD406/1/6518, Lord Archibald Hamilton, Hamilton, to his brother [the duke of Hamilton], 8 Dec. 1698.

¹⁹⁰ Paterson, *Writings*, Vol. 1, 35.

Geoffrey Parker and Karen Cullen have both argued that England did not suffer from famine conditions during this period because of the success of its poor laws, whereas Scotland's system failed to prevent famine.¹⁹¹ After 1560 and the initial establishment of Presbyterianism as the national Church of Scotland, the religious, and social reformers in Scotland, John Knox included, attempted to enact measures for looking after many of Scotland's poor through taxes and programs including poor laws modeled after the English system. Yet, little came of those, especially in the generations that followed when the aid of the poor, particularly in rural areas, relied upon voluntary contributions to the parishes in a system that T.C. Smout categorized as "weak and mean."¹⁹² In England, especially in the second part of the seventeenth century, a compulsory tax was levied by secular parish officials to raise money for assisting the poor and it was generally accepted.¹⁹³ In addition to this, several historians, including Parker, Flinn, Cullen, and Smout, have suggested that the switch to a Presbyterian church government from an Episcopalian church, and the removal of ministers that operated those structures in Scotland during the few years prior to the famine played a key role in limiting the resources available for the poorest, leading to the deaths of so many. The Scottish system seemed to work well enough during most years, but times of dearth or famine overburdened the system. Consequently, the success and stability of the English poor laws and structures for poor relief likely helped prevent lean harvests turning into famine there.¹⁹⁴ Additionally, Cullen has argued that in several

¹⁹¹ Cullen, *Famine in Scotland*, 26, 106. Parker, *Global Crisis*, 641. Parker attributed the rise of the welfare state in accomplishing this feat but included in that was the Poor Law.

¹⁹² Smout, *History of Scottish People*, 87. In urban areas more structures existed to help the poor such as funds from guilds, town councils, and trade societies. There were even hospitals for poor relief as well in many larger urban areas. See also Cullen, *Famine in Scotland*, 105.

¹⁹³ Smout, *History of Scottish People*, 84-6.

¹⁹⁴ Cullen, *Famine in Scotland*, 26; Flinn, *Scottish Population History*, 166; Mitchison, *Lordship to Patronage*, 83.

Scottish parishes where a tax was raised to assist the poor during the Ill Years, of which this applied to about a third, land owners that paid this tax failed to do so. In other instances where money was raised, there was a still a struggle finding grain and getting it to those who needed it.¹⁹⁵

David Crawford's 1699 account of the Scottish famine suggested that this argument has some merit, claiming that mortality and living conditions were much worse in many of the parishes in Scotland that had not "taken a regular course for providing their poor." For Crawford, part of the blame for the famine and poverty in the country fell on the parishes who did not provide enough for the poor.¹⁹⁶ Generally, it was the local community that had the financial responsibility for taking care of the poor within their community through parish tithes, fines, and fees from burials and baptisms.¹⁹⁷ Andrew Fletcher's 1698 account of Scotland also suggested that the scale of the famine contributed to the failure of this system.¹⁹⁸ Fletcher claimed that Scotland always had large numbers of poor, generally around 100,000 people, but what made the Ill Years different was that the country had no way to take care of them during the famine since Fletcher claimed that number of poor, likely from increased unemployed tenant farmers and laborers, had grown to 200,000.¹⁹⁹ Fletcher even offered up his solution arguing that every land-owning estate should take a certain number of people and put them to work "hedging and ditching" their land, in a way removing the parish system, but keeping the traditional role of land owners providing for the poor within their parish. For Fletcher, not only would this solve the

¹⁹⁵ Cullen, *Famine in Scotland*, 113-17.

¹⁹⁶ NRS, GD406/1/4402, [David Crawford], Edinburgh, to the duke of Hamilton, 8 Jun. 1699.

¹⁹⁷ Whyte, *Agriculture and Society*, 40-1.

¹⁹⁸ With the emphasis on grain exports and the limited funding to help the poor, Scotland seemingly drifted away from a moral economy. See E. P. Thompson, "The Moral Economy of the English Crowd in the Eighteenth Century" *Past & Present* 50 (1971): 76-136.

¹⁹⁹ Fletcher, *Two Discourses Concerning the Affairs of Scotland*, 3, 24.

problem of providing for the poor, it would also help increase agriculture yields by “improving” the land.²⁰⁰ While providing work for the poor in Scotland would have worked in some instances, finding enough willing land lords to supply for 200,000 people would have been a daunting task in any year, let alone the condition of the country in the late 1690s.

Other historians have sought to explain why England did not endure famine conditions through the difference between the agricultural systems in Scotland and England. For instance, A.B. Appleby argued that English agriculture practices also played a key role since the English division of agricultural products and growing subsistence crops in multiple seasons helped make them less susceptible to climatic fluctuations.²⁰¹ In support of this, Appleby pointed to the correlation between famine locations in the 1690s and the reliance of those countries upon single harvest agricultural products. Additionally, the elevation of agricultural lands also played a key role in increasing famine risk in Scotland. Figure 5.1 mapped the location of marginal land in the British Isles and demonstrated how the majority of Scotland was marginal land, or land that was better suited for pasture rather than planting, whereas the land in England and Ireland was not.²⁰² From this, it is clear that much of Scotland was better suited for grazing than for planting and more land was utilized for animals than grains, yet Scottish society relied upon grains for their subsistence at a ratio that was much greater than their economy could regularly support.²⁰³ Any major impact to grain crops could have a significant effect on Scottish society.

²⁰⁰ Fletcher, *Two Discourses Concerning the Affairs of Scotland*, 28.

²⁰¹ Andrew B. Appleby, “Grain Prices and Subsistence Crises in England and France, 1590-1740,” *Journal of Economic History* 39 (1979): 865-887; DeVries, *Europe in an Age of Crisis*, 81.

²⁰² R. Hoyle, “Why was there no crisis in England in the 1690s?” in R. Hoyle ed., *The Farmer in England, 1650-1980* (Routledge: London, 2013), 69-100.

²⁰³ Whyte, *Agriculture and Society*, 198.

While the English agricultural system had a better chance of more corps surviving, the limiting of the growth and development of the Scottish agricultural system certainly did not help. In the seventeenth-century Scottish agriculture, and especially animal husbandry was inferior to the English system.²⁰⁴ Despite this, several examples of ‘improvements’ to Scottish the agricultural system took place during the seventeenth century. Scottish landowners interbreed Scottish cattle with larger and higher profit yielding cattle from Ireland. Galloway had become an important center of the Scottish cattle trade and a “major innovator.”²⁰⁵ While this could work in some of the lowland areas, these larger cattle would struggle in highland areas. For crops, the total amount of cultivated land increased and agricultural yields per capita also increased, but this was a localized event more central to the lowlands.²⁰⁶ One reason for this was a limited use of enclosure and crop rotations including legumes and fallow periods. Enclosing land through tree planting became more common for lowland estates, if for no other reason than to mimic English style.²⁰⁷ Nevertheless, these trees would help enclose animals or shelter plants and in some cases their harvests produced more money than a tenant’s crops, however, this was only on the scale of tens of acres.²⁰⁸ Another reason was the use of lime or liming the more acidic Scottish soils, especially where limestone was found locally. This allowed for land on plateaus and hills to now become arable land, especially land at higher altitudes that was previously unused.²⁰⁹ Yet, this technique of liming was not practiced on a large scale until the eighteenth

²⁰⁴ Smout and Fenton, “Scottish Agriculture Before the Improvers: An Exploration,” *The Agriculture History Review* 13 (1965): 73.

²⁰⁵ Whyte, *Agriculture and Society*, 238-41.

²⁰⁶ Smout and Fenton, “Scottish Agriculture,” 81-2.

²⁰⁷ Whyte, *Agriculture and Society*, 120-1, 216-7.

²⁰⁸ Whyte, *Agriculture and Society*, 121.

²⁰⁹ Whyte, *Agriculture and Society*, 204.

century and there is no clear evidence to suggest that this occurred north of the Forth, which meant that many of the more marginal lands were without this important technique.²¹⁰

What growth and development there was, could not overcome overuse and this played a role in making Scottish agriculture produce less. Andrew Fletcher, writing at the end of the century, claimed that Scottish tenants now grew crops too frequently in “to [too] remote places, and at unseasonable times.”²¹¹ Fletcher provided a clear example that Scots had farmed more marginal land. Even Robert Sibbald wrote in his accounts of Scotland how “a vast deal of ground [was] now tilled and labored that was before pasture.”²¹² More recently, Michael Flinn’s study of the Scottish population confirms these narratives arguing that the amount of marginal land utilized for agriculture increased in Scotland during the seventeenth century as farmers turned to hilled terrain or more marginal land in many locations, which increased the total amount of land that was worked or farmed. Scotland was much more rural than its neighbors and agriculture was its largest employer having as many as 4 in 5 people living in rural areas.²¹³ So when the increases in total land farmed were negated as marginal lands became useless for agriculture by the second part of the seventeenth century because of the changing climate and overuse, it meant that a large portion of Scottish society was looking for food and or work.²¹⁴

Results of the Ill Years

By 1700, agricultural yields began recovering and the famine in Scotland ended, though it left several challenges behind. The first, was the Scottish population. Figure 5.5 displays the

²¹⁰ Smout and Fenton, “Scottish Agriculture,” 82.

²¹¹ Fletcher, *Two Discourses Concerning the Affairs of Scotland*, 37.

²¹² NLS, Sibbald, *Discourse Anent the Improvements May be Made in Scotland*, 28, 80; Mitchison, *Lordship to Patronage*, 94.

²¹³ Whyte, *Agriculture and Society*, 8-9, 21.

²¹⁴ Flinn, *Scottish Population History*, 153.

average deaths per year in Scotland for much of the Global Little Ice Age. Like other times of famine and great scarcity during the 1640s and mid-1670s, the 1690s saw a large spike in the mortality rate. From the beginning of the seventeenth century until 1834, Scotland averaged 100 deaths per year, and as figure 5.8 demonstrates, during the Ill Years this number grew to 134. While the exact decline of the Scottish population during the Ill Years is difficult to calculate given the inaccuracy of population records, estimates range from 5-15% nationally. Regionally, this total was even higher with the highlands and uplands regions losing upwards of 20%, Aberdeenshire losing close to 21%, and some places saw a decline up to 33% of the population lost, however those were exceptional cases.²¹⁵

Some of these numbers could be attributed to the many thousands of tenants that left the countryside or their local communities and fled to larger cities to try to escape the shortages in their local communities. Even so, tenants also made up a substantial portion of the deaths from the dearth and famines of the 1690s.²¹⁶ For instance, several regional parish records including Angus, Kirkhill, and Berwickshire denoted the burials of ‘strangers’ first appearing during the famine years as people moved to new areas looking for food or work.²¹⁷ This was, in part, due to what Geoffrey Parker described as the “urban graveyard effect” where people living in cities died with greater frequency because of increased vulnerability to disease and other causes of death, and the easier spread of it, moving to vulnerable locations prone to fire, flooding, and poorer air quality, and put more burden on cities to find food from outside sources.²¹⁸ For larger

²¹⁵ Flinn, *Scottish Population History*, 160, 179; Cullen, *Famine in Scotland*, 2, 123.

²¹⁶ Cullen, *Famine in Scotland*, 10; DeVries, *Europe in an Age of Crisis*, 85-6.

²¹⁷ Cullen, *Famine in Scotland*, 164-65.

²¹⁸ Parker, *Global Crisis*, 62-4.

urban areas like Edinburgh or Glasgow, they typically would have turned to the lowlands for their food, however, grain imports became a necessity during the Ill Years.

Not only was there the initial loss of life, but the famine temporarily disrupted population growth in other ways. Marriages and birth rate estimates from the 1690s help contextualize how devastating the famine years were to the Scottish population. Table 5.3 lists the national marriage index for Scotland and displays the average number of marriages for the 1690s. Beginning in 1695, there is a significant decline in the number of marriages that was ongoing through the Ill Years. In comparison, table 5.4 lists the number of baptisms in Scotland during the Ill Years taken from six regions including the Eastern Lowlands, the Highlands, the Western Lowlands, the North East, the Eastern Borders, and the Western Borders. Nationally, there was a significant decline in the number of baptisms during the Ill Years, which suggests that fewer children were born, likely the result of famine and malnutrition.²¹⁹ Regionally, we can see the impacts of the Ill Years in greater detail. The highlands, for example saw fewer baptisms than any other region in all but one of the Ill Years, when it only saw the second fewest. Outside of the highlands, the northeast had the next largest decrease in the number of baptisms each year. In 1699, in all but western lowlands, each Scottish region saw about half as many baptisms as the 1690-94 average.²²⁰ The result of fewer marriages and fewer children born in those marriages meant that the Scottish population declined in this way as well.

²¹⁹ Starvation is generally the least common cause of population decline during famine. A comparison with the Irish famine of the 1840s showed that only 2% of all deaths during this famine period was listed as starvation. Here malnutrition created as many problems by disrupting reproductive cycles and weakening bodies so that disease became a major factor. See Cullen, *Famine in Scotland*, 10, 19.

²²⁰ Cullen, *Famine in Scotland*, 134.

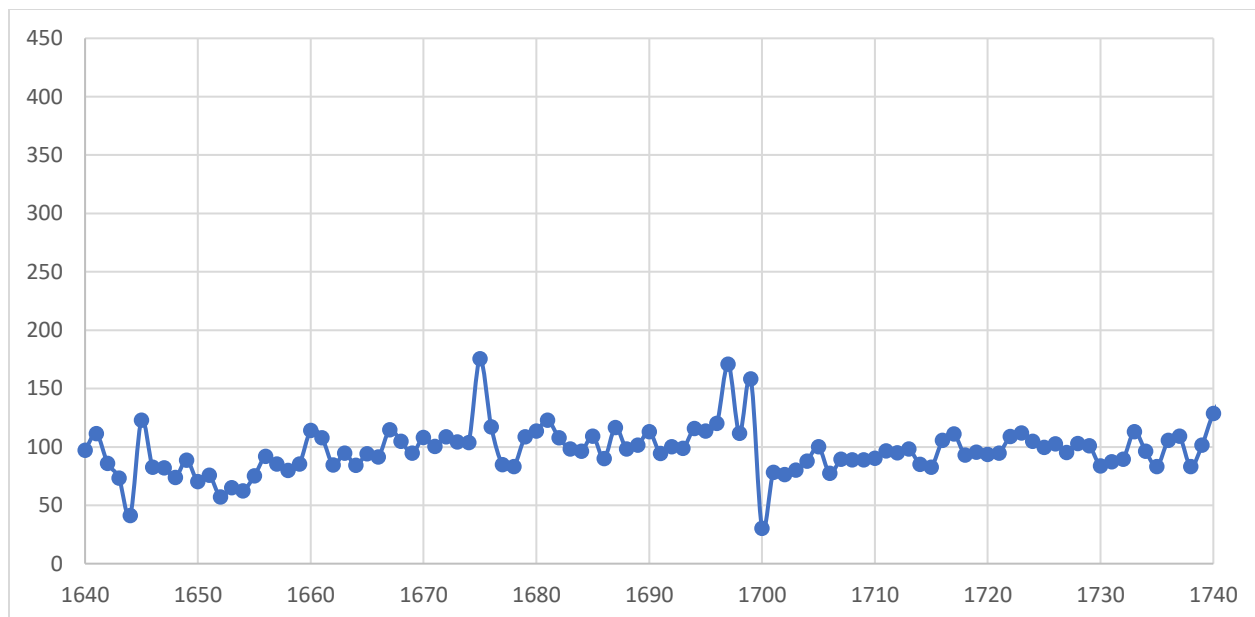


Figure 5.8. Average deaths per year in Scotland.

Source: Flinn, *Scottish Population History*, appendix.

Table 5.3 National Marriage Index Scotland

Year	Number of Marriages (National Average)
1692-94	100
1695	92.5
1696	80.5
1697	91.4
1698	64.4
1699	73
1700-04	86

Source: Data from Cullen, *Famine in Scotland*, 141.

Table 5.4 National Baptism Index

Year	Number of Baptisms in 6 Scottish Regions
1690-94	600
1695	553
1696	465
1697	493
1698	471
1699	338
1700-04	505

Source: Date adapted from Cullen, *Famine in Scotland*, 134.

Not all of Scotland's population losses came from deaths, as many others fled to Ulster, in what is now Northern Ireland, with estimates suggesting that between 50,000-100,000 Scots left for Ulster during the famine years. Scots moving to Ulster was not a new phenomenon since close trade relations had been renewed in Ulster after the warfare of the 1640s. After the 1690s Williamite War in Ireland, when James II and William of Orange fought for control of the British throne, left large plots of land barren or waste, it seemingly provided respite and new opportunities to Scottish tenants who had been burdened with debts or facing starvation.²²¹ Several tenants from Hamilton, for instance, who were to be arrested because they were unable to pay their rents left for Ireland in 1691.²²² Multiple reports from Craigie in 1691 and 1693 listed "several tenants that were breaking and moving away to Ireland." The reports claimed that those tenants left Craigie because of the inferior quality of the land and the poor harvests from it. One report went so far as to claim that the area had an abundance of "waste lands."²²³

Ireland and particularly the Ulster area seemingly offered a solution to many as it did not face many of the agricultural challenges that most of Scotland did at this time. Scottish migration and trade to Ireland helps demonstrate an early shift by Scots turning towards the Atlantic for solutions to their economic struggles, albeit only a brief journey. While Scotland had frequently turned to the North Seas world for trade and during times of famine and scarcity, the rest of the

²²¹ Cullen, *Famine in Scotland*, 2, 179.

²²² NRS, GD406/1/11770, David Marshall, Hamilton, to John Clark, writer in Edinburgh, 23 Mar. 1691.

²²³ NRS, E58/3/3,4,7, Craigie, etc. Estates of: Sir William Wallace of Craigie, comprising the barony of Craigie and Barnwell (parish of Craigie), Temple etc (parish of Auchinleck), Barony of Sanquhar and Newton (parish of Monkton, Ayrshire), William Crawford, younger, of Ardmillan in the parish of Girvan, Ayrshire. Colin MacKenzie, uncle of the Earl of Seaforth, in the barony of Herbertshire in the parishes of Denny and Dunipace, Stirlingshire, John Cleland of Faskine in the parish of Old Monkland, Lanarkshire, Account of John Lundie, younger of Baldastard, chamberlain of the forfeited and sequestrated estates of Craigie etc. for crop 1690.

North Seas World was dealing with their own struggles during the 1690s. Scotland's help during the Ill Years came from England, Ireland, and the Atlantic.

To try and put these records and accounts into more specific numbers, hearth tax returns from 1691 placed the Scottish population around 1,234,575. Andrew Webster's census of 1751 listed the Scottish population only having about 31,000 more people, or a growth rate of just over 500 people per year. That the Scottish population was only just able to recover sixty years later suggests that the famine years of the 1690s had a major effect on the Scottish population. Contemporaries would have paid particular attention to this population decline, especially as it related to the other lasting effect from the famine; the Scottish economy.²²⁴

1700s: Trials of Recovery After the Ill Years

The 1690s get the lion's share in discussions of the Ill Years as historians frequently point to 1700 as the end of the Ill Years. While the famine conditions may have ended on a national level, the Ill Years still had lasting effects, especially for the Scottish economy. The agricultural crisis of the Ill Years had left Scotland in an even worse economic position. Repaying debts from poor harvests still proved difficult for many communities as climatic fluctuations in conjunction with a quickly recovering price of grain on a national level contributed to this slow recovery. Both large land holders and smaller tenant farmers struggled during this period of 'recovery.'

Duncan Toshach's account of the harvest of 1700 provides an appropriate example of a 'good' harvest year after the Ills. During the harvest of 1700 there "fell a great snow all the countrie over which keepeth their harvest ten days behind." With the delay as well as the "blasting" and "great frost," the "malt" harvests spoiled, but Toshach claimed that the "corn"

²²⁴ Cullen, *Famine in Scotland*, 124.

harvest appeared unharmed.²²⁵ A proclamation (1700) for a national fast described the resulting harvest as adding to a “continued pinching dearth” despite being more “favorable.” According to the proclamation, “the number of the poor and their necessities have been and are greatly increased” and “a great and unusual sickness and mortality, which hath gone all over the land and doth yet in part continue.”²²⁶ Even with a year of ‘good’ harvests, agricultural production, and the financial gains from it, had not improved greatly.

Basil Hamilton also demonstrated the continuation of trials after the Ills while writing from the Castle of Aran, an island off the coast of western Scotland, in 1701. Hamilton described this as a better year for harvests with “there corns and grasses look[ing] well, there has been abundance of raine and warmth since we came here.” Despite the seemingly better conditions, Hamilton noted that the lists of rests on the island were quite considerable, demonstrating the struggle that this community continued to endure while recovering during ‘good’ years.²²⁷ Gavin Mason provides another example of the financial struggle in Scotland claiming that he could only receive a small portion of tenants’ rents because of the low price of grain.²²⁸ As was the case in the 1670s and 1680s, even when there was a good harvest year, tenants and land owners, many of whom held high debts from the previous famine years, still struggled financially because of a flooded grain market with low prices. These fluctuations of good and bad harvests were just as damaging to the finances of tenants and landowners as were the string of bad years.

²²⁵ NRS, GD112/39/182/22, Duncan Toshach, Perth, to [Breadalbane] 25 Nov. 1700.

²²⁶ NRS, GD150/3381, Act and Proclamation “Anent a Solemn National Fast and Humiliation,” 14-20 Feb. 1700.

²²⁷ NRS, GD406/1/4877, [Lord Basil Hamilton], Castle of Aran, to [the duke of Hamilton], 21 May 1701.

²²⁸ NRS, GD406/1/4665, [Gavin Mason] to [the duke of Hamilton], 5 Dec. 1700.

John Callendar's account from Bo'ness in 1702 details some of the economic challenges tenants and landowners faced in the years after the famine. Tenants there refused to pay their rents as some were 25 months behind, a debt few tenants could recover from in part because their agricultural yields still suffered from "the most excessive rains."²²⁹ In May 1703, John Hamilton wrote that there was a great scarcity of money amongst the Hamilton's tenants and that "not one penny to be goot for northox cow nor corn." He argues that this is happening "amongst all ranks [of men]" throughout the country.²³⁰ Another example from Caithness in 1703 showed tenants behind on rents and still unable to offer any grain towards them the last two years. One writer claimed that the oats that would grow could not even sustain the horses and it had become so desperate for some tenants that they attempted to bargain labor for food with Dundee land owners, at least 300 km away.²³¹ Daniel Hamilton reiterated a similar point writing early in 1703 claiming that most tenants in the country could not pay their rents because the previous harvest at Kinneil was "the worst crop in every respect that we have had this many years by gone" and "the prices are very low when there is any that can be spared to sell." He claimed that this scenario occurred throughout northern and southern Scotland as the harvest fell short in 3 of the 7 locations he observed. Astutely he commented that the tenants whose rents depend upon victual "will feel the smart of it [suffer]."²³² In a separate account from the same year, Anne Hamilton, writing in western Scotland, endured "the worst year of any that has been yet, that in a great many places I can get no rent nor have they to sow the ground.... but such is the povertie of

²²⁹ NRS, GD406/1/4991, John Callender, Bo'Ness, to [the duke of Hamilton], 3 Feb. 1702.

²³⁰ NRS, GD406/1/5154, John Hamilton, Garstang, to [the duke of Hamilton], 23 May 1703.

²³¹ NRS, GD112/39/191/10, [Monzievaird to Breadalbane], December 1703.

²³² NRS, GD406/1/5000, Daniel Hamilton, Kinneil, to the duke of Hamilton, 23 Feb. 1703.

many of my tenants tho I have given them a years rent down.”²³³ So while the famine might have ended nationally, the increased storminess and climatic aberrations of the Global Little Ice Age made recovery a challenge.

Even as late as 1705, localized subsistence and financial problems endured. Anne Hamilton wrote that “its unaccountable the ways that are now taken to ruin this poore countrie... besides the scarsnes of mony if this windy and raine weather conditione but a littell longer we about this place may be as scarce of victual as of mony and those that has gotten in there corns the drouth has made the straw so short that it cant be expected to maintaine there beasts, so you may judge in what condition my interest is in.”²³⁴ Her account demonstrated the financial problems because of crop failures that some were still facing even up to the voting of the Union because of the Ill Years. That she mentioned her ‘interests’ is an important point because it links the struggles that she has had both financially, and even growing enough crops to survive, with the changes in the climate and it demonstrates how someone could see anything offering them financial help as beneficial to the interests of some larger landholding families, and perhaps even to the entire country.

Nationally between 1695-1700 diminishing crop yields, grain shortages, and reduced cattle stocks sent food prices spiraling, the result of climatic aberrations, which was made worse by the structural problems and exploitative tendencies of rural society. This disproportionality hurt tenants and the poor, however, all of Scottish society felt the effects of this famine. The demands of the crisis overburdened the inefficient social structures in place to help prevent grain

²³³ NRS, GD406/1/6797, [Anne, duchess of Hamilton], Hamilton, to her son [the duke of Hamilton], 27 Feb. 1703.

²³⁴ NRS, GD406/1/6955, Anne, duchess of Hamilton, Hamilton, to her son the duke of Hamilton, 3 Sep. 1705.

shortages becoming famines and by the time the famine ended nationally, the population had declined between 5-15%. While the loss of life because of famine conditions was catastrophic, the timing and financial repercussions of the famine put a severe financial strain on an already weakened Scottish economy.²³⁵ The losses of specie through agricultural imports helped generate a new desire to increase Scottish trade, however it may be found.

²³⁵ Cullen, *Famine in Scotland*, 28.

CHAPTER 6

The Company of Scotland and Scotland's Shift to a British-dominated Atlantic World

In a 1693 proposal for a land bank in Scotland, Hugh Chamberlen wrote to the Scottish Parliament that trade, especially in natural commodities, was the way to wealth, honor, and power. With trade came more specie, support for more people, and more power as a nation, and Chamberlen cited the Dutch United Provinces and England as prime examples of this.¹ Despite the limited successes and more recent struggles of Scottish trade up to that point, Chamberlen saw little reason to worry and posited that Scotland was as well positioned to trade as any nation with its natural resources of grain, cattle, wool, flax, coal, salt, copper, iron, lead, and fish.² What was lacking though, was stock to “imploy” trade in those resources.³ Although Chamberlen’s proposal amounted to little, two years later, the Company of Scotland seemingly provided such an opportunity to ‘imploy’ Scotland’s natural resources within an economic geography that extended far beyond the shores of the North Seas.

The Company of Scotland Trading to Africa and the Indies, often referred to as the Company of Scotland or the Darien Company, is best known for its attempt to set up a Scottish colony on the Caribbean coast of present-day Panama. Its name alone as well as its failed colonization project in the Americas symbolizes the transition of Scottish trade into a larger Atlantic World. Ultimately, the Company of Scotland failed in its endeavors in Panama and to

¹ NRS, PA7/14/70, Papers relating to a Bank of Credit upon Land Security proposed to Parliament by Dr. Hugh Chamberlen, 14 Jun. 1693, 1.

² NRS, PA7/14/70, Paper relating to a bank of credit, 1.

³ NRS, PA7/14/70, Papers relating to a bank of credit, 9.

expand Scottish trade into the West Indies, yet the Company of Scotland is in many ways a microcosm for the rest of Scotland as it endured climatic changes as it attempted to transition to a new Atlantic World economy at the end of the Global Little Ice Age. For instance, the Company attempted to help boost a struggling Scottish economy through Atlantic colonial trade, its members directly suffered at the hands of a changing climate through outfitting their ships heading overseas, the Company became involved in the herring and salt trade in Atlantic facing Scotland, and the Company played a significant role in the final union debates.

While Scotland was not itself a major trading power outside Europe, that does not mean that it did not attempt to become one. Europe's major powers, and many of its minor ones as well, struggled for position within the seventeenth century idea of a balance of power, where power was finite and for one country to gain power, another had to lose it. Three ways that countries could gain power was through trade, trading companies, and colonies. For this, Scots increasingly turned towards Atlantic colonies. The Company of Scotland was the largest of these attempts in the Atlantic. With their main goals of setting up a trading colony that relied upon the natural resources of Scotland, the Caribbean, and as founding member William Paterson hoped, the East Indies too, they fit the model of many European trading companies during this period. While planning its venture to the West Indies, the Company of Scotland first sought to expand its power and wealth through a monopoly of the Scottish salt industry and the herring fishing trade. This, its largest attempt at establishing an overseas empire, demonstrates how the Company thought it could take advantage of opportunities that awaited on Scotland's Atlantic-facing coasts. It also highlights the Company's adaptations and responses to environmental and climatic changes of the Global Little Ice Age by attempting to monopolize Scotland's resources as well as trading in those of the rest of the world. The development and failure of Scotland's mercantile

companies provides some insight into many of the economic challenges Scotland faced at the end of the seventeenth century and its attempt to partake in an Atlantic colonial economy.

The chapter argues that by the turn of the eighteenth century, and the time of the Union debates, Scotland had begun a transition to an Atlantic-facing economy rather than a North Seas-facing one. That does not mean that the North Seas World and the connections it brought no longer existed, but that Scotland now turned its attention to a larger Atlantic, and by the eighteenth century, a British Atlantic World in which the North Seas were just one part of. This chapter provides some of the background for that transition but explores more closely the rise of Atlantic-facing Scotland. It begins with a discussion on mercantilism and joint stock trading companies and how these ideas drew Scotland towards the Atlantic and led to the formation of the Company of Scotland, which reappears during much of this chapter as it demonstrates the chapter's important themes. At this point in the work it is no surprise that herring and salt trade appear again. These two commodities again played a central role in the trade for Atlantic facing Scotland, especially Glasgow. While many of the same commodities played an important role like salt, coal, and herring, so too did goods from the American colonies like tobacco and sugar. From there, the chapter continues onto how Scotland, through the Company of Scotland, fit into geopolitics and the early modern idea of the balance of power. The last section explores the struggles of the Scottish economy in the twenty years prior to union, which is displayed in the difficulties of supplying the Darien expedition and the struggles in Scotland after it failed and how Darien's failure in the shifting geopolitical world at the beginning of the eighteenth century pushed Scotland into an Atlantic facing world.

Scotland's Economy Under William and Mary

By the late 1680s, the Scottish economy and Scottish trade saw three trends. The first was that it was a period of change. After several years of success, the 1690s saw failure and

stagnation become more common. Second, Scottish trade, and especially the discussions around it, began to shift more and more towards England and even the American Colonies. Lastly, Scottish trade became more influenced by disruptions and changes from war and mercantile reforms.

The first, third, fourth, and fifth chapters highlighted some of the renewed economic growth during the Restoration period beginning in the 1660s, however, in the two decades prior to the Union, Scottish trade declined significantly, and many gains made since the restoration ceased. While the country saw some economic success after the 1680s, that success was relative. Glasgow, for instance, experienced significant growth, but other burghs like Aberdeen, St. Andrews, and Crail saw declines in trade by the end of the century. As the 1680s proceeded, Scottish trade, especially in the North Seas facing part of Scotland, began declining. In Leith in 1688, for example, wine shipments decline by a third, wood by over a half, and madder by more than a half from what they were the previous decade.⁴ Within urban areas, evidence suggests that economic decline had become a common factor by the early 1690s as many Scottish burghs struggled with debt. Even Glasgow, which saw increased trade during much of the century, held over £200,000 in public debt by 1690, the result of military conflict and religious struggle.⁵ Some industries like linen had found steady financial success and were continuing to grow, but by and large, the Scottish manufacturing industry and much of the economy was financially struggling by the 1690s.

By the beginning of the eighteenth century, Scottish income from exports was little more than £110,000 per year with more than half of this income coming from England.⁶ By

⁴ Smout, *Scottish Trade*, 243.

⁵ Whatley, *Scots and the Union*, 121-22.

⁶ Smout, *Scottish Trade*, 205, 255.

comparison, English income from taxes and customs in the 1690s, even during a period of warfare, averaged nearly £24 million per year.⁷ Landed interests fared no better with as many as one in four estates having changed ownership because of bankruptcy between 1660-1710.⁸ Scottish society still relied upon a steady supply of grains, which, because of the Ill Years, were in short supply by the mid-1690s. Bullion and specie were regularly in short supply and crippling debts became more common on estates and within lower levels of society that could find the support to accumulate them.⁹ The consequences of this loss of trade were far reaching as it disrupted tax revenues and prevented specie from going into the economy including manufacturing or agricultural improvements.

Tariffs and protections of domestic trade also became more common after the Restoration. The two governing administrations of England and Scotland did not always agree over trade as English economic and foreign policy could go against what was best for Scotland's economy. One of the most detrimental examples were the Navigation Acts beginning in the 1660s. Though originally aimed at the Dutch, these acts by the English Parliament identified Scots as foreigners, cutting them out of English trade. Specifically, they prohibited foreign ships from carrying or transporting trade goods into England, required English ships to consist of 3/4 of an English crew, and prohibited the colonies from exporting certain trade goods, like tobacco or sugar, to anywhere other than English ports, making them ship trade goods to England before heading to the Continent. The Navigation Acts slowly put more pressure on Scottish trade.

Prior to the Navigation Acts, Scots had begun looking towards the Atlantic for new economic opportunities. With the Adventurers' Act of 1642 and subsequent legislation after the

⁷ Whatley, *Scots and the Union*, 128.

⁸ Whatley, *Scots and the Union*, 121.

⁹ Whatley, *Scots and the Union*, 120.

Cromwellian occupation of Ireland in the 1650s, Scots colonized land, set up plantations, and built greater trade connections with Ireland, and especially Ulster.¹⁰ The Navigation Acts later hampered this trade, at least on an official basis, but clandestine trade and the newly built trading connections remained prevalent during this period. The last chapter noted how during the 1690s, for instance, several Scottish tenant farmers left for Ireland during the Ill Years.

Scots also ventured to the Americas. Sir William Alexander of Menstrie attempted to set up a colony in Nova Scotia [thus the name] in the 1620s. Despite initial success in setting up fortifications and settlements, they soon ran into competition from England and later French efforts on the island by the end of the decade. The settlement was slowly abandoned over the next 10 years.¹¹ As the century drew to a close, Scots became more active in the Atlantic setting up colonies in South Carolina (1682) and East Jersey (1685). Despite a receptive welcome from the English inhabitants in South Carolina, their attempt to cut into the fur trade prompted a Spanish attack in 1686 that effectively ended this endeavor.¹² East Jersey also saw some initial success with Scottish investment and colonists settling there by 1685, but this too was short lived once England switched the governing structure of the colonies to dominions in 1686. This change reinforced the Navigation Acts and shut Scots out of English trade.¹³

One result was that the Navigation Acts ushered in an increase in clandestine trade, especially in Atlantic markets. For instance, Scottish merchants tended to utilize less policed

¹⁰ Macinnes, *Union and Empire*, 114-120.

¹¹ For more on this see N.E.S. Griffiths and J.G. Reid, "New Evidence on New Scotland, 1629," *William and Mary Quarterly* 39 (1992): 492-508; J.G. Reid, *Acadia, Maine, and New England: Marginal Colonies in the Seventeenth Century* (Toronto: University of Toronto Press, 1981), 31-50; Macinnes, *Union and Empire*, 143-6.

¹² Macinnes, *Union and Empire*, 164-66. Scots also had significant involvement in New Sweden during much of the seventeenth century.

¹³ Macinnes, *Union and Empire*, 168-73.

English ports in Newfoundland to acquire goods from the colonies, as well as the disputed land near the Chesapeake, where England and the North Seas power Sweden had conflicting claims. Others utilized English merchants as fronts for their own business or simply stated that colonial goods were going elsewhere and sailed to Scottish ports once away from English patrol ships in the Americas.¹⁴ There was also regular illicit trade with Ireland as several Scottish peers frequently struggled to enforce the ban of Irish goods into Scotland, citing a lack of resources to enforce the laws (see chapter eight).

Over the course of the seventeenth century, especially towards the end, Scottish external trade began a subtle shift towards the British Isles and the Atlantic relative to the North Sea and Baltic. Recent scholarship has highlighted the growing attempts of Scottish merchants to develop the Atlantic or colonial trade.¹⁵ Yet, Christopher Whatley argues that despite the ambition of Scottish overseas merchants and trading companies in the Atlantic “Scotland’s foothold on the world beyond her traditional bases in Northern Europe was perilously slight,” however, that did not mean it was not moving towards the Atlantic.¹⁶ To obtain the economic success and along with it the power and political leverage that Scottish merchants desired required a larger trading company or military force to protect its merchant fleet, both of which Scotland lacked. Because of this, most legal trade by the end of the century occurred within the North Sea and the Baltic, though the Company of Scotland was one attempt to push Scotland’s economy into the Atlantic.¹⁷

¹⁴ Whatley, *Scots and the Union*, 113; Macinnes, *Union and Empire*, 181-200.

¹⁵ See Macinnes, *Union and Empire*.

¹⁶ Whatley, *Scots and the Union*, 126.

¹⁷ Smout, *Scottish Trade*, 87, 111, 169, 171.

By the end of the century, Europe's major powers had become a collection of composite states backed by manufacturing, colonies, and tariffs. Without colonies and an extensive manufacturing base, Scottish trade and industry was falling behind, and specie remained elusive. For many Scottish contemporaries by the 1690s, obtaining colonies or creating a Scottish trading company became a necessity for Scotland's economic future. For instance, Scottish Natural Philosopher Robert Sibbald described the importance of Scotland obtaining colonies arguing that "colonies are found not only useful but even necessary to all nations, but especially to those who possess but small tracts of land," like Scotland for instance. Sibbald utilized England and its trading companies as an example of the success colonies could generate, and, therefore, Scotland needed its own colonies to even have a chance at financial success.¹⁸ Sibbald was not alone with this way of thinking, as colonies and trading companies, and their role in generating trade, falls well within the dominant economic discourse and policy of mercantilism of the seventeenth century.

The "Ballance of Trade"

Mercantilism and its influence into the actions of governments, or political economy, was a dominant European economic policy and discourse during the seventeenth century.¹⁹ Mercantilism saw the state or government regulating trade to help increase hard currency or wealth and further promote trade. Although mercantilism as an economic policy looked different in many European countries, above all else, it was concerned with acquiring wealth by

¹⁸ NLS, Robert Sibbald, *Treatise Concerning the Fisheries in Scotland or an Account of Fishes on the Coast of Scotland*, 27.

¹⁹ See Fernand Braudel, *The Wheels of Commerce: Civilization and Capitalism 15th-18th Century* (Berkeley and Los Angeles: University of California Press, [1979] 1992); Immanuel Wallerstein, *The Modern World System II: Mercantilism and the Consolidation of the European World-Economy, 1600-1750* (Berkeley and Los Angeles: University of California Press, [1980] 2011).

accumulating specie or bouillon, and this was done through a positive balance of trade.²⁰ Outside of Spain and Portugal, which had access to large gold and silver mines and bullion in their American colonies, much of the rest of Europe acquired specie or bouillon through trade. A positive balance of trade or economic plenty created opportunities for power and power also brought with it more trade and plenty.²¹ Within explanations of mercantilism, historians have emphasized an idea of a European balance of power or as seventeenth-century contemporaries called it, a balance of trade. This economic and geopolitical theory argued that power, specie, or trade, was limited, and for one country to gain power, specie, or trade, another country had to lose it.²²

There were several key aspects in keeping a positive balance of trade. These included utilizing all parts of a country for agriculture, mining, or manufacturing; turning raw materials into domestic manufactures, since this produced a higher value in specie or bouillon than the raw materials themselves; encouraging population growth for a larger labor force and military; banning imports that were already found or manufactured in the home country; when it was necessary to import goods, it was always better to do so through trade rather than exporting gold or silver, since gold or silver (bouillon) were essential to wealth, though this was not always adhered to as closely in the Scottish case. Governments, be it through a parliament or advisors, created laws to enforce these ideas, but trade and with it the accumulation of wealth or specie took place through trading companies and merchants.²³

²⁰ Lars Magnusson, *The Political Economy of Mercantilism* (London: Routledge, 2018).

²¹ Magnusson, *Political Economy*, 3-10.

²² For a brief historiography and more on mercantilism see Braudel, *The Wheels of Commerce*, 542-54.

²³ See Braudel, *The Wheels of Commerce*; Magnusson, *Political Economy*, 540-60.

Thomas Mun's account of English trade policy written in the 1620s, published posthumously in 1664, and reprinted several times during the next four decades, provides a helpful example of the general policies of mercantilism or maintaining "the ballance [sic] of the trade." Mun was a well-known and successful merchant in the Levant trade in the early seventeenth century and was an early director of the East India Company. In fact, Mun's first writings on trade in the 1620s were in direct response to the East India Company trade operations.²⁴ In Mun's work, mercantilism, as an economic policy, functioned through three principle actors: merchants or companies, colonies, and the state or government—with each having a vested interest in the existence and success of the others.²⁵

Merchants were the "principal agent" of mercantilism and "the steward of the Kingdoms stock by way of commerce with other nations."²⁶ Merchants conducted the trade vital to accumulating wealth. They could operate individually, taking manufactured goods from the home country and trading them to colonies of the home country, or to foreign countries. They could also operate through larger companies, like the East India Company, or in Scotland's case, the Company of Scotland. These joint stock trading companies relied upon private investments, but often sought state or government support. Trading companies also colonized territories since colonies supplied raw materials for the home country and they could also serve as a market for manufactured goods.

Next, there was the role of the state or government. While merchants or trading companies conducted trade and acquired raw materials, gold, silver, or specie, the state regulated

²⁴ Thomas Mun, *England's Treasure by Forraign Trade or the Balance of Forraign Trade is the Rule of Our Treasure* (London: MacMillan & Co., 1895 [1664]).

²⁵ Mun, *England's Treasure by Forraign Trade*, 36.

²⁶ Mun, *England's Treasure by Forraign Trade*, 1-2.

much of this trade and collected income from customs and taxes on trade. For instance, the Scottish Parliament would often grant trading companies privileges for a period of 21 years. This often included guaranteeing a monopoly over their trade and allowing the company to trade tax free during this period. Once this period ended, companies paid customs taxes to the government on their goods, one of the main sources of revenue for the state during this period. In turn, the state would often provide naval support for trading companies by protecting shipping lanes.

While trade was one of the major focus of Mun's work, foreign trade, rather than domestic, was the most important for England, or any other country without bouillon, in order to keep a positive balance of trade. If a merchant received a surplus in specie from trade, they could utilize this excess specie to purchase more raw materials for export and continue this cycle.²⁷ Trade and the accumulation of specie was the measure of means of a country. England, like most other countries without numerous gold and silver mines, had "no other means to get treasure [specie] but by forraign trade."²⁸ For Mun, trade and the accumulation of specie, drove "the ballance of trade."²⁹

The more trade or means a country had, the more powerful they could grow. According to this line of reasoning, anything that promoted increased net trade for merchants, or a trading company, was also good for the country, assuming that it led to a positive balance of trade. As Mun put it, "the private gain may ever accompany the publique good."³⁰ Specie brought in more trade and trade increased specie. Any specie invested into trade, especially by the state with funds collected from customs and taxes on trade, only benefitted the country since it begot more

²⁷ Mun, *England's Treasure by Forraign Trade*, 30.

²⁸ Mun, *England's Treasure by Forraign Trade*, 20, 40.

²⁹ Mun, *England's Treasure by Forraign Trade*, 16, 20.

³⁰ Mun, *England's Treasure by Forraign Trade*, 1-2.

trade, specie, and provided greater means. For instance, means provided the resources, materials, and financing that allowed for the construction of more ships, be they for merchants to transport goods, or navies to protect shipping lanes and trading interests. The more revenue the state possessed, the greater the potential investment into trade and larger militaries to protect trade.³¹

One final point Mun emphasized was to make use of “waste grounds”—or waste seas—by turning these ‘waste’ areas into useable raw materials and saleable products or manufactures through the expenditure of labor.³² Like so many other commentators of the seventeenth century, Mun emphasized the latent “natural wealth” of fish accessible to Scotland, England, and Ireland that “cost nothing but labor;” implying that the ships, men, and materials needed to catch, preserve, and trade fish was already in place.³³ Mun also utilized the example of Dutch herring fishing to show a successful example of mercantilism in practice.³⁴ The Dutch utilized their surplus labor force to collect fish from the sea and they traded their fish in exchange for specie and other raw materials. Dutch manufacturers turned these raw materials into trade goods for more specie or raw materials. Additionally, the fishing trade provided Dutch merchants with ships and mariners to ship other trade goods and it also supplied the Dutch state with revenue and means, as well as sailors when needed.³⁵ Mun even argued that the Dutch were taking English wealth by catching herring so close to English soil, which further demonstrated the concept of the balance of power and trade where Dutch gains meant that the English lost

³¹ Mun, *England's Treasure by Forraign Trade*, 20, 23.

³² Mun, *England's Treasure by Forraign Trade*, 9.

³³ Mun, *England's Treasure by Forraign Trade*, 12.

³⁴ Mun, *England's Treasure by Forraign Trade*, 12.

³⁵ Mun, *England's Treasure by Forraign Trade*, 12.

power.³⁶ From this example, we can see that one of the key characteristics of trade, was a strong knowledge and control of the sea and navigation.³⁷

Since controlling resources and the sea was such an important tenet to mercantilism, especially in England and Scotland, Hugo Grotius's *Mare Liberum* (1609), a legal work justifying the right of the Dutch United Provinces to fish and trade in the Portuguese-controlled waters of the Indian Ocean, was read as a direct attack on Scottish and English rights in regard to the North Seas herring trade. Grotius's main argument and main target of criticism was that the sea was an open commons.³⁸ To support this, he explored this idea of *mare liberum*, or the free sea, throughout legal texts from the Greco-Roman period. He argued that, unlike land, the sea was not able to be occupied, controlled, or possessed, and, therefore, no state or power could restrict its use.³⁹ There were though, two caveats. In the case of fishing, for example, once a fisherman pulled a fish out of the sea, that became his property. Grotius also suggested that some coastal waters could be controlled and was not a commons, though this area was quite limited and not explicitly defined until later works like *De Jure Belli ac Pacis* (1625).⁴⁰

William Welwod's reply in 1613 challenged Grotius's work claiming that it was a "pretense" to justify foreign fishing, especially herring fishing, along the Scottish and English coasts.⁴¹ Welwod, a Scottish jurist, had previously published a Scottish treatise on Scottish sea law, and in his rebuttal to Grotius, argued that the United Provinces harmed and disrupted the

³⁶ Mun, *England's Treasure by Forraign Trade*, 99-100.

³⁷ Mun, *England's Treasure by Forraign Trade*, 4.

³⁸ Hugo Grotius, David Armitage, Richard Hakluyt, and William Welwod, *The Free Sea* (Indianapolis: Liberty Fund, [1609] 2004), 11, 20.

³⁹ Grotius, *The Free Sea*, 24, 26, 30.

⁴⁰ Grotius, *The Free Sea*, introduction, XX.

⁴¹ Grotius, *The Free Sea*, 65-66, 78-9.

English and Scottish fisheries.⁴² Welwod supported his argument by claiming that God granted humans dominion over the Earth, which provided precedent for establishing dominion over the sea. Grotius had rebuked this Biblical claim, arguing that it was taken out of context and did not refer to the sea.⁴³ Furthermore, Welwod argued that Grotius's classical legal precedents were outdated. Welwod did agree that the sea, far removed from any land, should remain a common sea, but that was all that *Mare Liberum* pertained to.⁴⁴

The differences between Grotius and Welwod's arguments were not resolved through either's legal discussion and because controlling the sea was so vital to trade and essential for mercantilism, European powers fought several battles for control of the sea's resources and trade during the seventeenth century. This included several battles during the Anglo-Dutch wars in the second half of the seventeenth century such as the battles of Lowestoft, the Four Days' Battle, and Solebay. These battles are hardly surprising since Mun wrote that "it is a principal in reason of state to maintain and defend that which doth support them and their estates."⁴⁵ For Scotland, although Scottish merchants or companies could have the support of the government, the Scottish government lacked the resources to protect the interests of merchants and trading companies, namely it lacked a sea power to protect trade. Despite these maritime struggles, when warfare was absent, commercial fishing still grew in Scotland during the end of the seventeenth century, where the western coast of Scotland saw unprecedented growth.

⁴² Grotius, *The Free Sea*, 74.

⁴³ Grotius, *The Free Sea*, 64-67, 83.

⁴⁴ Grotius, *The Free Sea*, 74.

⁴⁵ Mun, *England's Treasure by Forraign Trade*, 119.

Scotland's Atlantic push: Herring, Glasgow, and the Company of Scotland

By the 1670s, reports of herring failures became less frequent on the Scottish mainland. Despite being only a small proportion of the North Sea herring catch when compared to the Dutch, figure 6.1 shows that the exports of Scottish caught herring during the seventeenth century went through a boom and bust cycle. The graph's trend line suggests an export boom of Scottish herring catches starting around 1670, albeit with several fluctuations indicative of climate variability along Scotland's Atlantic and North Sea coasts, but it dwarfed what had preceded it. Figure 6.1 suggests that while herring fishing in places like Shetland and the Dutch herring fishing saw declines, the Scottish herring industry began to recover beginning in the 1670s.

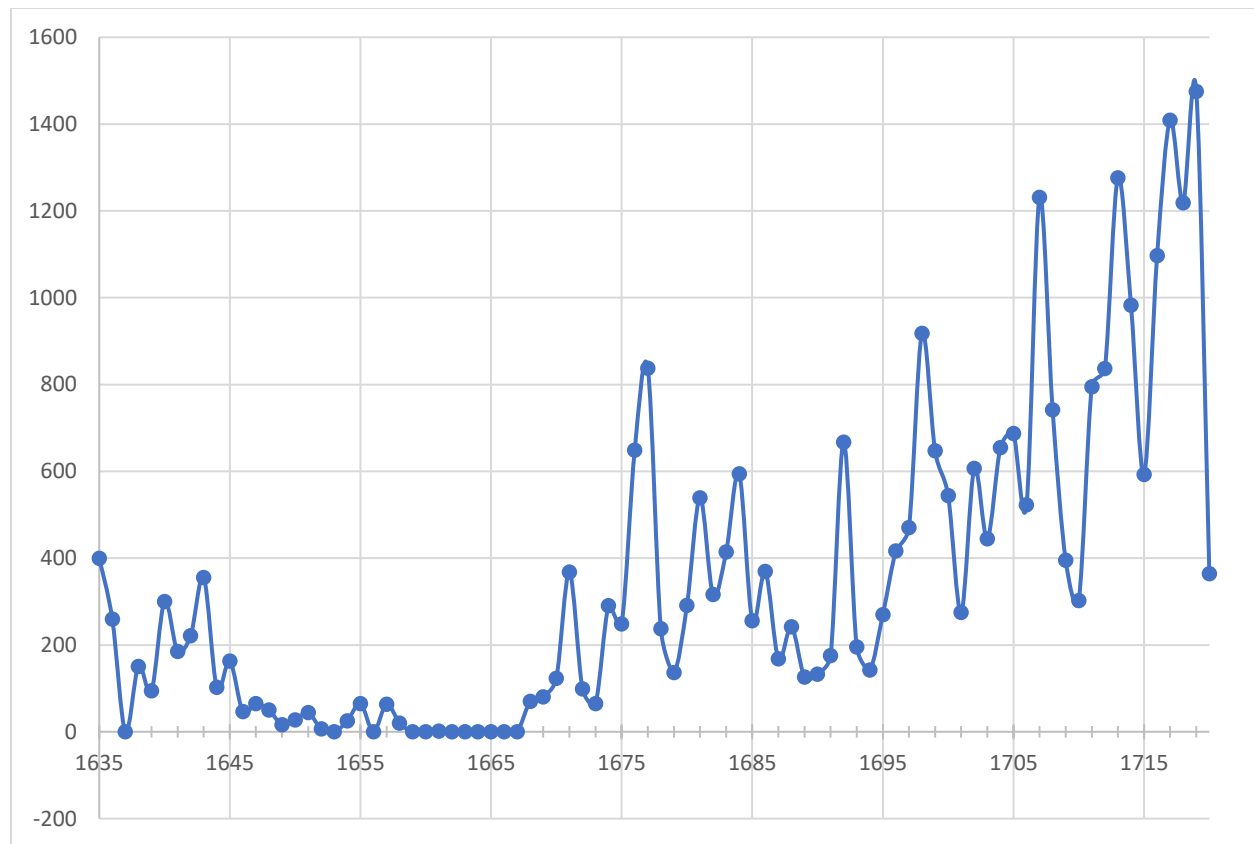


Figure 3.1. Lasts of Herring Shipped from Scotland by Scottish vessels.

Source: Data adapted from Sound Toll Registers Online, <http://dietrich.soundtoll.nl/public/index.php>.

Various documentary sources, such as the *Chronicles of the Frasers*, suggest that commercial herring catches saw an unprecedented growth during the second half of the seventeenth century in western Scotland. James Fraser of Phopachy wrote in 1666 that Scottish fisherman caught herring in Loch Fyne, situated near the Clyde in western Scotland, and that the herring in western Scotland were “judged to be the greatest herring in the kingdom.” Fraser also wrote that there was another good herring catch in western Scotland at Loch Earn.⁴⁶ Later, while writing about the herring catch of 1671, Fraser claimed that the winds brought many herring into their lochs and that there had never been more herring.⁴⁷ These lochs are more protected for fishermen than those who are out at the open sea, and also the herring, thus enabling relatively primitive craft to participate in this “inshore” fishery. These herring, despite typically being smaller and maturing earlier than herring on the eastern coast of Scotland, were fished earlier in the year before the large schools of herring in eastern Scotland.⁴⁸ Accounts like Fraser’s help demonstrate how most Scottish herring fishing remained close to shore and small-scale, especially when compared to the Dutch. For instance, Fraser commented how the local fishermen would sell their fish every night in one of the larger towns and then go back out to the water the next day.⁴⁹

⁴⁶ James Fraser, and William Mackay, *Chronicles of the Frasers: The Wardlaw Manuscript Entitled 'Polichronicon Seu Policratica Temporum, or, The True Genealogy of the Frasers, 916-1674* (Edinburgh: Printed at the University Press by T. and A. Constable, for the Scottish history Society, 1905), 465.

⁴⁷ Fraser, *Chronicles of the Frasers the Wardlaw Manuscript*, 492-94, 498.

⁴⁸ Coull, *Sea Fisheries of Scotland*, 17.

⁴⁹ Fraser, *Chronicles of the Frasers the Wardlaw Manuscript*, 494; John Collins, *A Plea for the Bringing in of Irish Cattel, and Keeping out of Fish Caught by Foreigners Together with an Humble Address to the Honourable Members of Parliament of the Countries of Cornwall and Devon, About the Advancement of Tin, Fishery, and Divers Manufactures* (London: Printed by A. Godbid and J. Playford, 1680), 8.

Part of the reason for the success of the herring fishing in western Scotland was because of the circa 1660-90 Bohuslan phase and negative trend in the North Atlantic Oscillation that diminished the North Sea coastal herring trade. The strong westerlies that are associated with the Bohuslan period that kept herring away from Shetland and brought them to the shores of Sweden may also have helped bring herring into the lochs and coasts of western Scotland. Figure 6.2 clearly demonstrates the significance of the new boom industry in western Scotland by demonstrating the percentage of herring caught on the eastern and western coasts of Scotland. By the 1670s, we begin to see a significant rise in the number of herring caught on the western coast of Scotland, which had largely been absent in the beginning of the figure. Climatic changes, the expansion of trade, and geopolitics were influencing the growth of the Scottish herring industry during this period and nowhere saw a greater benefit in the Atlantic facing part of Scotland than Glasgow.

Sitting on the Atlantic side of Scotland on the Firth of Clyde near the mouth of the Clyde River, Glasgow has been an important trading center in western Scotland since its establishment as a Scottish burgh in the twelfth century, though its location near the River Clyde drew inhabitants for many centuries before that. Yet, until the mid-twentieth century, the historiography of the city of Glasgow portrayed it as a quiet town that suddenly awoke after the acts of union. Beginning in 1961, T.C. Smout, along with several subsequent historians, have all stressed that nothing could have been further from the truth. In the seventeenth century, and especially during the second part of the century, Glasgow became an increasingly important trade town, a period Smout called the forebearer of the much more famous tobacco trade of the

eighteenth century.⁵⁰ Though much of this work has highlighted tobacco and sugar during this period, herring too played a key role in the rise of Glasgow during the second part of the seventeenth century.⁵¹

Although Glasgow was hardly a small quiet town at the start of the seventeenth century, it still had a modest standing in Scotland. In 1612, Glasgow only paid 4% of all Scottish taxes to the crown, which was the fifth most among Scottish burghs. By comparison, Edinburgh paid 29%, Dundee 11%, Aberdeen 8%, and Perth 6%. At the beginning of the next century, in 1705, Glasgow paid 20% of all taxes to the crown and was second among Scottish burghs by a wide margin; Edinburgh still led the way at 35%, with Aberdeen a distant third at 5%.⁵² Given this obvious-success, it is unsurprising to see that Glasgow's population had reached between 12,000-15,000 by the beginning of the eighteenth century, almost double what it was at the start of the previous one.⁵³ Even by British standards, this was a large town, verging on city, as only London, Edinburgh, Bristol and Norwich had over 20,000 people, and fewer than a half a dozen other English towns had over 15,000 people.⁵⁴

⁵⁰ T.C. Smout, "The Glasgow Merchant Community in the Seventeenth Century," *The Scottish Historical Review* 47 (1968): 57.

⁵¹ T.C. Smout, "The Early Scottish Sugar Houses, 1660-1720," *English Historical Review* 14 (1961): 240-253; Mona Duggan, *Sugar for the House: A History of Early Sugar Refining in North West England* (Stroud: Fonthill Media, 2013); T.H. Breen, *Tobacco Culture: The Mentality of the Great Tidewater Planters on the Eve of Revolution* (Princeton: Princeton University Press, 1985); T. M. Devine, *The Tobacco Lords: A Study of the Tobacco Merchants of Glasgow and their Trading Activities* (Edinburgh: Edinburgh University Press, 1990); Jacob Price, "The Rise of Glasgow in the Chesapeake Tobacco Trade, 1707-1775," *William and Mary Quarterly* 11 (1954): 179-199; Jordan Smith is also working on a project tracing the early origins of the Glaswegian Sugar and Rum industry.

⁵² Smout, "The Glasgow Merchant Community," 54.

⁵³ Smout, "The Glasgow Merchant Community," 55.

⁵⁴ Smout, "The Glasgow Merchant Community," 55.

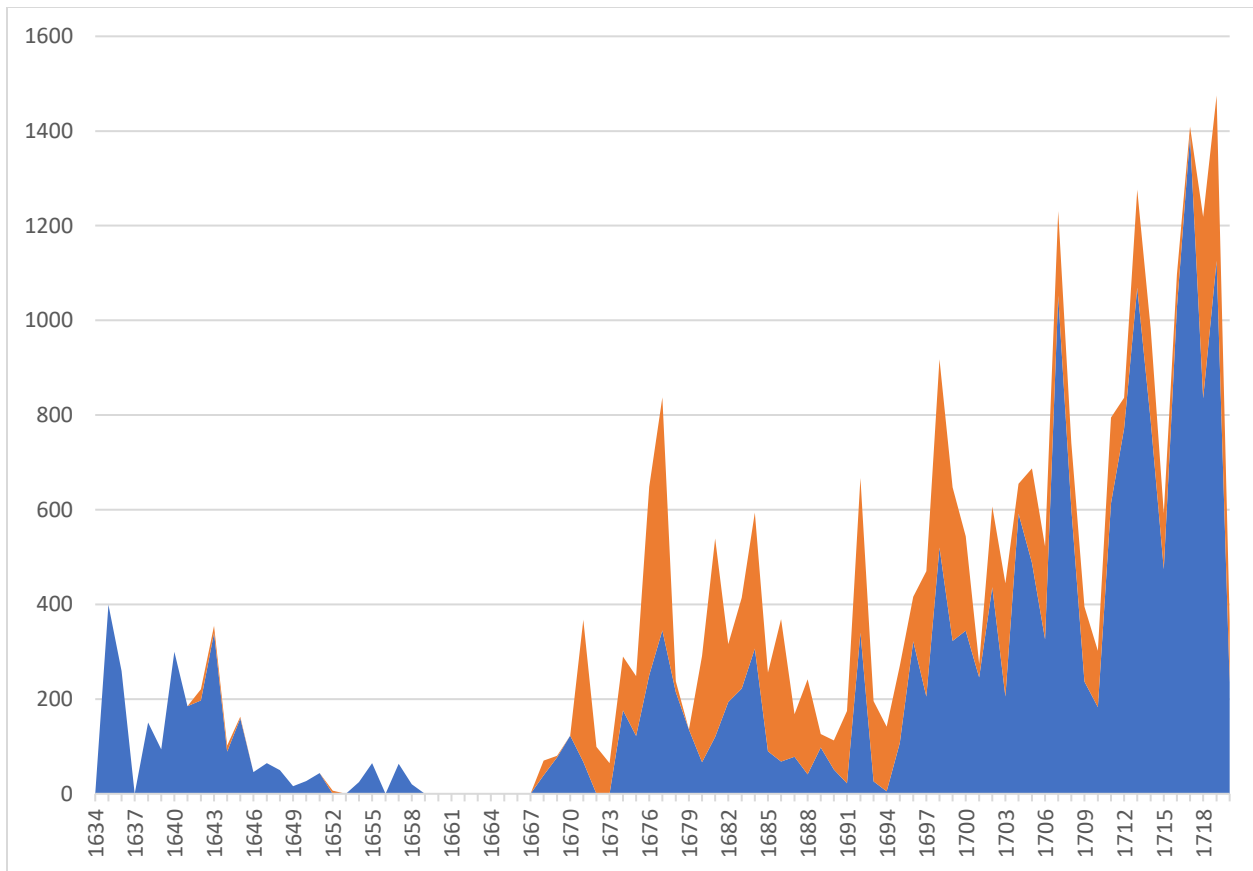


Figure 6.2. Scottish Herring Exports to the Baltic, 1634-1720 in lasts, from eastern (blue) and western (orange) ports. A last was equal to 12 barrels, or around 2 metric tons (4400) pounds, however the exact weight in each state varied, making it problematic to create a direct conversion.

Source: Data adapted from Sound Toll Registers Online, <http://dietrich.soundtoll.nl/public/index.php>.

During the second half of the seventeenth century, Glasgow's wealth grew "more rapidly than any other large burgh" in Scotland, in part because of the rapid development of the Atlantic trade with England's new colonies in the Americas.⁶⁰ The importance of imported colonial goods like tobacco, sugar, and rum are well noted in the historiography of Glasgow during the seventeenth century. For instance, T.C. Smout and T.M. Devine have both highlighted the importance of the tobacco trade from the Chesapeake to the rise of Glasgow to prominence from

⁶⁰ Smout, "The Glasgow Merchant Community," 56.

circa 1660 to 1730.⁶¹ Also important for Glasgow's Atlantic trade in the seventeenth century was sugar and rum. Both the Scottish sugar and rum industries saw success during the second half of the seventeenth century with three refineries opening in Glasgow between 1667-1700.⁶² Glasgow processed unrefined brown sugar sent from Caribbean colonies based upon slave labor like Nevis, and from it produced loaf and powder sugar. The waste product, molasses, was initially exported, but later, it was fermented and distilled into rum. In Scotland, this transition from exporting waste molasses instead of rum happened only when it became profitable after excise taxes made it too expensive to export the 'waste' molasses of sugar refining.⁶³ Work for a new port known as Glasgow directly on the Firth of Clyde began in 1667 to accommodate the increasing tobacco trade and larger sailing vessels.⁶⁴

Despite being on the Atlantic side of Scotland, Glasgow was still an active player in the North Seas trading community, which included the herring trade. For instance, of all the ships that exported herring from western Scotland and into the larger North Sea and Baltic markets from 1660-1707, only 8 out of 228 ships departed from a western Scottish port that was not Glasgow or nearby Greenock.⁶⁵ Glasgow merchants exchanged specie, Scottish goods such as herring, and those produced from the colonial commodities of the New World, for wine and salt from France, wood, iron, and flax from Norway and Sweden, and "groceries and consumer goods" from the Low Countries.⁶⁶ For instance, John Watson, an Edinburgh merchant was

⁶¹ T.M. Devine, "The Colonial Trades and Industrial Investment in Scotland, c. 1700-1815," *The Economic History Review* 29 (1976): 3; T.C. Smout, "The Early Scottish Sugar Houses, 1660-1720," *The Economic History Review* 14 (1961): 251-53.

⁶² Smout, "Glasgow Merchant Community," 57.

⁶³ Smout, "Early Scottish Sugar Houses," 251-52.

⁶⁴ Smout, "Glasgow Merchant Community," 57.

⁶⁵ Based upon data from figure 6.2 (6 out of 84 sildt) and (2 out 144 all other spellings)

⁶⁶ Smout, "The Glasgow Merchant Community," 56-7.

trading with Glasgow at the end of the seventeenth century. Watson shipped and traded tobacco and herring, as well as brandy, oranges, and lemons originating from Mediterranean markets, between Edinburgh and Glasgow, as well as with Holland and England.⁶⁷ Another example comes from the letter book of Gilbert Robertson. During the 1690s, Robertson fitted ships in Glasgow that sailed for London, Stockholm, many locales in the Netherlands, as well as Danzig, Hamburg, and France.⁶⁸ Those examples illustrate the growing importance of Glasgow to overall Scottish trade, which was growing to include, not only herring and other traditional goods of the North Seas trade, but also larger trade networks as well connecting Scotland to the Mediterranean and colonial Americas.

Clearly trade was important for the rise of Glasgow, and while many have studied the growth of Glasgow through colonial commodities like sugar, rum, and tobacco, largely missing from this narrative is herring, and the fishing industry more generally. As Glasgow grew in prominence during the seventeenth century, so too did herring fishing in western Scotland. That is not to say that herring was the most important industry to the growth of Glasgow at that time, it was not. Nevertheless, herring's inclusion into this narrative of growth during the end of the seventeenth century, which put in place the structures and capital that helped create the booming Glasgow of the eighteenth century, is important and cannot be ignored.

As figures 6.1 and 6.2 demonstrated, Scots began to catch an unprecedented amount of herring, where Atlantic herring were concerned, during the 1670s, albeit with significant fluctuations. By the 1680s, the numbers from the figures suggest that the Scottish herring industry had fully recovered from the bust period stretching from the late 1640s to late 1660s, at

⁶⁷ NRS, CS96/3309, John Watson, younger, merchant, Edinburgh. Letter and account book 1696-1713.

⁶⁸ NRS, CS96/1726, Gilbert Robertson, merchant, Edinburgh. Letter book.

least on the Scottish mainland. The rising importance of catches in western Scotland was a major part of this. A 1680 report by John Collins stated that there “is great plenty of herrings round the coast of Ireland,” which seemingly supports the data of the new growth in the western Scottish herring industry (see figure 6.2).⁶⁹ A 1693 act in the Scottish parliament “for the faithful curing and packing of herring and salmon fish” stated that herring were often caught in the less populated Atlantic facing regions of Scotland, which made it difficult to abide by the current laws for curing and packing of herring, or at least difficult to make sure they were enforced since there were fewer regulators in western Scotland. This act also shows the significance of Scottish herring, and that of western Scotland, by stating that herring and salmon fishing “contributes to the advancement of trade and general good of the nation.”⁷⁰ The Scottish Parliament were not the only ones who saw herring as a vital trade of the nation as the Company of Scotland even tried to set up a herring industry on the west coast of Scotland at the end of the 1690s.⁷¹

The best-known writer providing documentary evidence in support of an increase in the western Scottish herring industry centering in and around Glasgow, comes from Robert Sibbald. Sibbald, perhaps the best known Scottish natural philosopher of his time, provided an account from the year 1698 describing the state of fishing and whaling off the whole coast of Scotland at the turn of the eighteenth century. When discussing herring, Sibbald felt it most appropriate to “begin with the firth of Clyde both because the fishing is better there than in the other firths and beginning much earlier too and because there are more fishing boats here and fishermen then are to be found anywhere else.” In particular, he highlighted Greenock (just upstream from Glasgow and the new Port Glasgow) and argued that the fish that came out of the Firth of Clyde were

⁶⁹ Collins, *The Plea for Irish Cattle and Keeping out Fish*, 8.

⁷⁰ NRS, PA7/14/31, Supplementary Parliamentary Papers, 1691-1693.

⁷¹ See chapter 4.

“longer and of better taste and trade better with salt” referring to Scottish industrial production of the brinish salt utilized specifically for salted herring exports.⁷² Sibbald claimed that recently, in the Clyde, Scottish fisherman caught and exported 2,500 lasts or what he calculated as 3,402 metric tons of herring in a year, in addition to the “vast quantities which are consumed within the country.”⁷³ Although vast is a bit unclear, especially since herring were typically an export product except when used as bait, this statement demonstrates that the herring industry in western Scotland was active during this period.

Sibbald also commented on the herring themselves in western Scotland writing that “they swim with a great deal of order as [an] army marching in battle,” first swimming along the coast and then entering the lochs of western Scotland where people awaited them each year, likely in the winter and early spring months.⁷⁴ He claimed that some Scottish fisherman would travel as far as the Bay of Dublin to catch herring, working through the night when the fishing was so good. Figure 6.3 redisplayes the data from figure 6.2, but in this figure it helps showcase the unprecedented importance of herring caught and exported by Scots on the west coast of Scotland—at least until the late 1690s—and explains why Sibbald would have argued for locating a herring fishing company on the west coast of Scotland.

⁷² NLS, Sibbald, *Discourse Anent the Improvements in Scotland*, 88.

⁷³ NLS, Sibbald, *Discourse Anent the Improvements in Scotland*, 83. Sibbald listed this as 3,750 tons. This account also brings up a point about conversions. Here a last is less than 1 ton, more modern conversions have it closer to 2 tons, and several other early modern accounts have it place between 1-2 tons.

⁷⁴ NLS, Sibbald, *Discourse Anent the Improvements in Scotland*, 84-5. He specifically mentioned lochs Goyle, Lung, and Kiddan.

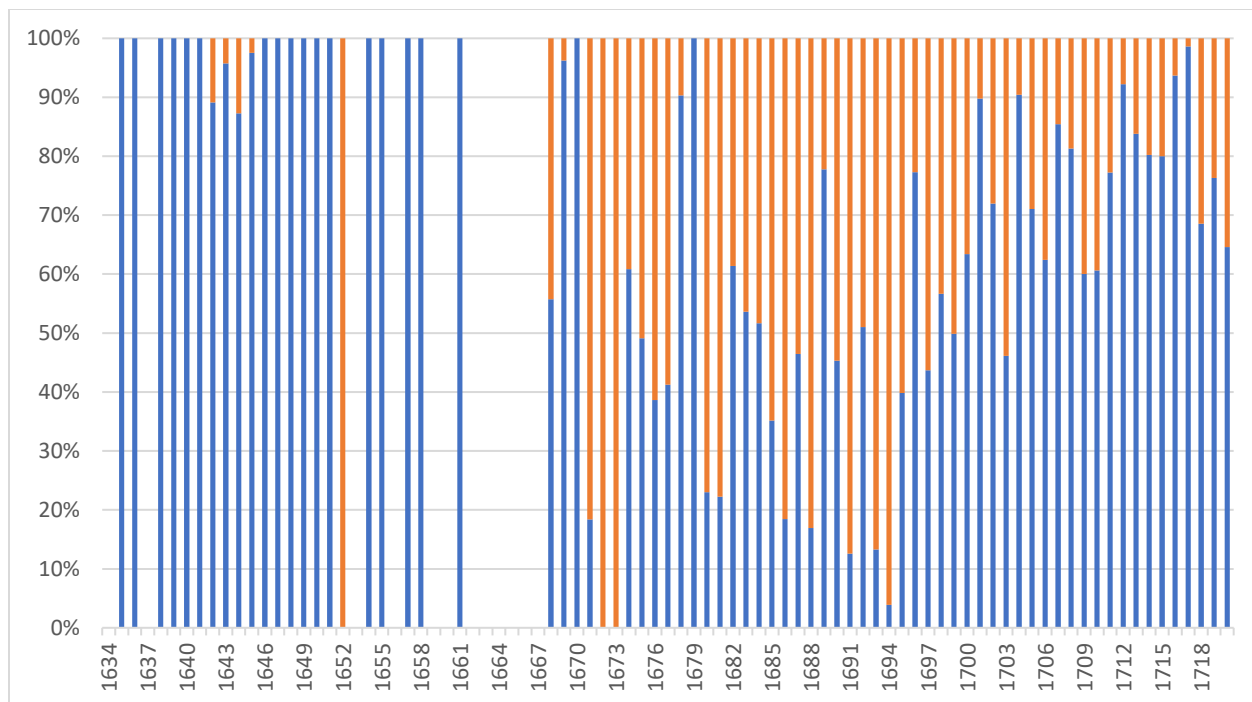


Figure 6.3. Proportion of Herring caught and exported to the Baltic from western (orange) and eastern (blue) Scotland.

Source: Data adapted from Sound Toll Registers Online, <http://dietrich.soundtoll.nl/public/index.php>.

Despite the acknowledgement of their importance, there was no herring fishing company in Scotland when Sibbald published his work on Scottish fishes in 1698.⁷⁵ Most fishing companies in Scotland, or those involving both Scotland and England, or English companies utilizing Scottish herring, failed during this period. The first example after the Restoration was from 1661 when the Scottish Parliament and Charles II approved the creation of a Scottish fishing company. By approving the formation of this fishing company, Charles II and the

⁷⁵ There were several efforts to establish cod fishing companies in New Foundland at the beginning of the seventeenth century, but these too failed. It was only after enacting a 'free' fishing zone in 1634 that English cod fishing expeditions saw large successes. See Harold Innis, *The Cod Fisheries: The History of an International Economy* (New Haven: Yale University Press, 1940).

Scottish Parliament attempted to obtain the wealth that herring could provide and take away some of the power that the Dutch had in the herring trade.

Albeit after a decade of delay, the Royal Company began fishing off the costs of Scotland in 1671. The Scottish government supported it by declaring it a company, which allowed for tax exemptions and removed customs fees from their supplies and exports.⁷⁶ Like most such chartered companies, the Royal Company utilized private funds and consisted of the “nobility and a few others.” It attempted to “monopoliz[e]” the trading not only of fish, but also of salt, “so that others might not import or export salt or fish for certain months of the year.”⁷⁷ Sibbald wrote that this company was well received when it traded herring in Hamburg and received “more given for the last of them than was given for the Dutch.”⁷⁸ Despite some success catching herring, the company was not profitable. Several retrospective accounts of the Royal Company from the end of the seventeenth century, posited that the company failed financially because of the actions of the Parliaments of both Scotland and England, the Royal Court, and from limited funds. Andrew Fletcher (1698) argued that the “court... [had] undermined” Scottish fishing companies under King Charles II but did not allude to what those actions were.⁷⁹

William Paterson, a member of the Company of Scotland and a founder of the Bank of England provided more insight and corroborates Fletcher’s argument writing that the Royal Company failed because acts by the Scottish Parliament were “prejudicial” against fisheries and herring fishing going back to James IV (1540s). Paterson posited that these previous acts, going

⁷⁶ Paterson, *Writings*, Vol.1, 47-8.

⁷⁷ Robert Law, *Memorialls or the Memorable Things that Fell out Within this Island of Great Britain 1638 to 1684* (Edinburgh: A. Constable, 1818), 43-44.

⁷⁸ NLS, Sibbald, *Discourse Anent the Improvements in Scotland*, 70.

⁷⁹ NLS Andrew Fletcher, *Two Discourses Concerning the Affairs of Scotland, Written in the Year 1698*, 15.

back to the sixteenth century, slowly removed many of the structures in place to help promote fishing, including fishermen and the infrastructure to export fish, so that by the time this act went into effect, it was “impossible [that] this Act could recover the fishing.”⁸⁰ When writing on the subject at the beginning of the eighteenth century, Paterson’s summary of Scottish herring companies was that they tried to operate as private companies or as individuals and those attempts all failed. As evidence of this, Paterson implored his readers to look at the current state of the country of Scotland. His solution was to have a national fishing trade company, which was financially supported by the state, setting up a common theme for the union debates.⁸¹

English fishing companies fared little better. The New Royal Fishing Company of 1677 relied upon the herring off Scottish shores. The New Royal Fishing Company also had royal approval and the backing of the duke of York and the earl of Derby, amongst others, and raised £12,580 for outfitting a crew, building ships, and purchasing land.⁸² While the company initially had royal support, it, like all other fishing companies during this period, still relied upon private funds before it could utilize the return from its industry. Despite some initial success operating in the North Sea, France, who was at war with the Dutch, seized most of the company’s ships and supplies, because the crews were largely Dutch, which forced the company to disband in 1680. It

⁸⁰ Paterson, *Writings*, Vol. 1, 49.

⁸¹ Paterson, *Writings*, Vol. 1, 72; In 1700, there was an additional attempt to set up a Scottish fishing company. A *Memorial or proposal for fishing by a joynt stoke on the North coast of Scotland* claimed that £5,000 sterling had been raised for the company. It seems this attempt did not get too far off the ground since it disappears from the records after this initial proposal. See NRS, GD305/1/159/47, *Memorial or Proposals for fishing by a Joint Stock Company on the North Coasts of Scotland*, 1700.

⁸² Company of the Royal Fishery of England, *A Discourse Concerning the Fishery Within the British Seas and Other His Majesty's Dominions and More Especially as it Relates to the Trade of the Company of the Royal Fishery of England* (Edinburgh: George Mosman, 1695), 5-12; Bo Poulsen, “Imitation in European Herring Fisheries” *Scandinavian Journal of History* 41 (2016): 188.

did little to help their cause when, to avoid a larger conflict with France, Charles II refrained from backing the fishing industry as it fell victim to geopolitics of the time.⁸³ Even obtaining royal approval or support did not always mean that the state would defend or protect a company. Sometimes, it simply meant that a trading company could legally operate.

Nevertheless, because the herring fishing industry of the Scottish mainland began to recover in the 1670s, Scottish contemporaries still perceived herring to be one of the keys to the wealth of the world and all other trade. Contemporaries posited that capturing this market would allow Scotland to become a major player in the European stage or the balance of trade or power and Scottish investors made several unsuccessful attempts to capture this market. In fact, Scottish and English commentators still saw herring fishing as “the gold mine of Holland.”⁸⁴ Robert Sibbald posited that Hollanders could raise £1,000,000 sterling per annum from herring and stated that fishing companies or “fishes... are a great principle of foreign trade.”⁸⁵ Merchants, politicians, and even smaller fishing communities in Scotland thought like Sibbald and saw herring as their opportunity to the wealth of the world and could even lead to the wealth of the Indies. Sibbald also argued that a “late company of fishing,” one of several attempts to set up a Scottish fishing company in Scotland, had set up buildings on the western coast near the Clyde, but never made much use of them as the companies went out of business. He provides support to the argument of a strong Atlantic coast herring fishing industry arguing that the failed Scottish company would have done very well in western Scotland if it had been around longer

⁸³ Company of the Royal Fishery of England, *A Discourse Concerning the Fishery Within the British Seas*, 5-12; Poulsen, “Imitation in European Herring Fisheries,” 188.

⁸⁴ Brand, *A Brief Description*, 799.

⁸⁵ NLS, Sibbald, *Scottish Fisheries*, 31, 33, 34.

and it would have done much for the area by bringing in more trade, which is just what the Company of Scotland attempted to do.⁸⁶

A Company of Scots

In 1695, the Company of Scotland Trading to Africa and the Indies came to fruition after receiving royal approval.⁸⁷ The Company of Scotland, also referred to in documents as the African Company or simply the Company, was a private stock and investing company similar to other more well-known examples of the seventeenth century such as the Virginia Company, the East India Company, or the Dutch East India Company.⁸⁸ The main goal of these companies was to utilize, what they saw as a limited amount of natural resources to expand the trade of the metropole, often through the acquisition of overseas colonies.⁸⁹ With the Union of Crowns, Scotland was simultaneously a part of and separate from the British empire during the

⁸⁶ NLS, Sibbald, *Discourse Anent the Improvements in Scotland*, 84-5.

⁸⁷ The act actually passed the Scottish parliament in 1693 but was not approved by the Marquis of Tweeddale, the king's commissioner to parliament, until 1695 and therefore, not approved by William until 1695. *The History of Caledonia, or, The Scots Colony in Darien in the West Indies With an Account of the Manners of the Inhabitants and Riches of the Countrey* (London: s.n., 1699), 3-4.

⁸⁸ Wallerstein, *Modern World System II*, 45-50; Richard Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens, and the Origins of Environmentalism, 1600-1860* (Cambridge and New York: Cambridge University Press, 1995), 55-60, 101-3; Ann M. Carlos and Stephen Nicholas, "Theory and History: Seventeenth-Century Joint-Stock Chartered Trading Companies," *The Journal of Economic History* 56 (1996): 916-924; De Vries and Van der Woude, *First Modern Economy*, 390-406.

⁸⁹ Grove posited that the acknowledgement of limited natural resources, during the mid-seventeenth century, developed ideas of "conservation." These ideas worked well within the balance of trade or power of the time and political economy. See Grove, *Green Imperialism*, 5-7, 15, 55-60. Pomeranz utilized "ghost acres" or the additional resources and markets from European colonization and trading companies which created a divergence between Europe and Asia. See Kenneth Pomeranz, *The Great Divergence: China, Europe, and the Making of the Modern World Economy* (Princeton: Princeton University Press, 2000), 264-80; Corey Ross referred to this era as a period of "trade-based imperialism," which denotes the importance of trading companies and resources. See Corey Ross, *Ecology and Power in the Age of Empire: Europe and the Transformation of the Tropical World* (Oxford: Oxford University Press, 2017), 7-10. See also Wallerstein, *Modern World-System II*, xviii-xxv, The B Phase.

seventeenth century. Scots could take residence in many English colonies, but the Navigation Acts banned trading with England's Atlantic colonies.

Overseeing the Company of Scotland, its finances, and its operations, was a board of directors, headquartered in Edinburgh, and it charged William Paterson with raising the initial £400,000 necessary for its operation. Paterson was born in 1658, in Dumfriesshire, Scotland. He went to sea as a young man, and by the 1680s lived in the Bahamas and became heavily involved in the West Indies trade.⁹⁰ He obtained his knowledge of Indies economics and Darien, an isthmus located in eastern Panama, during his time in the Bahamas. His journals show that he was very well versed with trading companies and their establishment in the region. With this knowledge, Paterson returned to England during the reign of James II in the mid-1680s and suggested the idea of a British colony in Darien because it was thought to possess abundant gold deposits and its geographic position placed it as the center of global trade, but it never came to fruition. With a change of monarch Paterson tried again, but William III had little interest in Darien, so Paterson turned his interests elsewhere. With his knowledge of trade and economics, he became one of the founding members of the Bank of England, but after disputes with the other members he left and supported the formation of a Scottish trading company becoming a prominent member after the creation of the Company of Scotland.⁹¹

With Paterson's help, the Board of Directors created a limited subscription period, accepting pledges and direct investments, to obtain the £400,000 required to start the Company. Large numbers of Scottish nobility and gentry including the Wemyss family, several members of the Hamilton family, the Scott family, and Andrew Fletcher of Salton invested between £1,000-

⁹⁰ William Paterson and Saxe Bannister, *The Writings of William Paterson ... Founder of the Bank of England, and of the Darien Colony* (London: Judd & Glass, 1859), xix-xxiv.

⁹¹ Paterson and Bannister, *The Writings of William Paterson*, xix-xxiv.

3,000 and many communities formed a collection to invest in the Company. The subscription effort lasted from February 26 to April 22, 1696 and collected just under £100,000. The rest of the £400,000 was pledged and collected in the following months.⁹² To put this into perspective that was about £10,500,000,000 in today's market and it occupied between one quarter to one half of all the specie, or hard currency, in Scotland.⁹³ It was an enormous investment involving a huge portion of the country's economy, especially in the lowlands, that would benefit merchants and investors if it succeeded, but hurt many more if it failed.



Figure 6.4. Image of William Paterson.

Source: Found in Saxe Bannister, *The Writings of William Paterson ... Founder of the Bank of England, and of the Darien Colony* (London: Judd & Glass, 1859).

⁹² The entire pledge records still exist and are more easily accessed in *The Darien Papers*, appendix, 371-417.

⁹³ Christopher Whatley and Derek Patrick, *The Scots and the Union* (Edinburgh; Edinburgh University Press, 2006), 173.

Once William III had approved the Scottish trading company, Paterson believed it was only a matter of time before it faced opposition from other companies, such as the Levant Company and the East India Company. In July 1695, shortly after the approval of a Scottish company, Paterson stressed the need to have members and investors of the Company in London and to keep their meetings and activities secret. He feared the Company of Scotland's shut down and believed the best way to prevent that was to become established in London where they could be in position to help sway the English Parliament away from the influence of these larger trading companies.⁹⁴ Paterson was right to be worried because English merchants and investors in companies like the Levant Company, the East India Company, and the Royal African Company saw the Scottish Company as direct competition and raised complaints in the English Parliament.⁹⁵ Scotland's company had little chance of succeeding if the bigger and longer established English companies saw it as a rival. Paterson realized that a Scottish company had to find some aspect of trade that those other companies had missed, and that it needed to set up a colony or outpost where other European colonists and militaries did not wish to venture.⁹⁶ With those guidelines in place, Paterson's idea of a colony at Darien in present-day Panama eventually won the support of the directors as a symbol of Scottish merchants' shifting aspirations towards the Atlantic. However, prior to the embarkation of the Darien expedition, they first turned their attention and efforts toward Scotland's own resources, an aspect of trade that Scottish and English companies had failed to monopolize: herring and salt.

⁹⁴ William Paterson, London to board of directors, Edinburgh, 2 Jul., 5 Sep. 1696, in *The Darien Papers Being a Selection of Original Letters and Official Documents Relating to the Establishment of a Colony at Darien by the Company of Scotland Trading to Africa and the Indies, 1695-1700* (Edinburgh, 1849), 2-7.

⁹⁵ *Post Man and the Historical Account* (London), 17 Dec. 1695; *The History of Caledonia*, 4-5.

⁹⁶ Paterson, London to board of directors, Edinburgh, 9 Jul. 1696, *The Darien Papers*, 4.

As chapter four noted, the first business actions by the company of Scotland was to set up a salt monopoly to gain control of the salt and herring fishing industry of Scotland. They began looking for land in western Scotland to set up their new salt industry and petitioned the Scottish Parliament to gain royal approval for their new method of making salt and the protections Parliament could offer a new company. While their salt endeavors failed to materialize, they also attempted to set up a fishing company in 1700.

In their fishing company proposal, the Company claimed to have £72,000 sterling available for equipping a fishing company designed exclusively to catch herring. If they did have this much, they might have been able to build a considerable offshore fishing fleet as James Puckle's account in 1695 claimed that an English fishing company could operate each herring fishing buss of no greater than 70 tons for £900, though they did admit this was significantly less than what the Dutch paid for theirs since England grew many of the necessary supplies.⁹⁷ However, this fits within the range of £900-1300 that several more speculative accounts of the basic operating costs of a herring buss fleet.⁹⁸ Two-thirds of this went to building busses, upkeep, nets, rigging, and supplies, and the other third went to wages.⁹⁹ The Royal Company (1695) provided a useful breakdown of these expenses in table 6.1.

⁹⁷ James Puckle, *England's Interest, or, A Brief Discourse of the Royal Fishery: In a Letter to a Friend* (London: J. Southby, 1695), 32.

⁹⁸ Puckle, *England's Interest*, 32; Simon Smith, *The Herring-Bvsse Trade: Expressed in Svndry Particulars Both for the Building of Busses Making of Deepe Sea-Nets, and Other Appurtenances Also the Right Curing of the Herring for Forreine Vent : Together with, Sundry O[R]Ders of the Netherlands for the Better Governement of the Royall Fishing As by the Following Treatise Doth More at Large Appeare: All Which Hath Bin Perused by the Parliament Committee and Is Appointed to Bee Published for the Generall Direction of the Whole Kingdome* (London: E.P., 1641).

⁹⁹ Puckle, *England's Interest*, 32.

Table 6.1 Construction and Annual Operating Costs for a New Herring Buss, circa 1695

Expense	Cost £
Cost of one new herring buss	403
Ship amenities, including [sails?], furniture, [stores?], and victual	218
Nets, tools, and other fishing equipment	242
Hooks and Lines	15
Casks and salt	221
Wages for the herring season	89
Wages for other fishing seasons (cod and ling)	103
Other wages for workers on shore	41
Total	1,332

Source: Company of the Royal Fishery of England, *A Discourse Concerning the Fishery Within the British Seas*, 28-29.

The main selling point of the Company of Scotland's fishing company was that it would bring in large profits, which the author claimed would be over £50,000 per year, and it would also employ many Scots.¹⁰⁰ Like other fishing companies, the Company of Scotland also argued that herring fishing provided opportunities for more than just those who caught fish including "workmen, wrights, smiths, fraughts, net works, [and] spinsters."¹⁰¹ In addition, the author of the pamphlet suggested that the profits from this fishing company would be reinvested and eventually utilized to finance for other trade opportunities, including overseas trading colonies.¹⁰²

¹⁰⁰ NRS, GD305/1/162/219, Various Proposals Overtures etc. the first whereof is "A short proposal for the African Company and Fishery 1700."

¹⁰¹ NRS, GD305/1/162/219, Various Proposals Overtures etc. the first whereof is "A short proposal for the African Company and Fishery 1700."

¹⁰² NRS, GD305/1/162/219, Various Proposals Overtures etc. the first whereof is "A short proposal for the African Company and Fishery 1700."

Despite their significant amount of funds, the Company suffered from overzealous ambitions and poor timing. With only one herring buss, the Company nonetheless claimed to be able to catch 8,640 lasts of herring per year, which would have been more than Scottish herring fishing caught in almost any year, ever. It was likely the timing of this company that was more significant in its failed launching. By the end of 1700, the Company of Scotland had just lost its colony at Darien and while they looked to new ventures to advance trade, this proposal never gained enough support or royal approval.¹⁰³

Nevertheless, it is important to note that the first opportunity the Company of Scotland turned to was herring. Their proposal speculated that their herring fishing company would bring in over £1,000,000 scots but the author of this proposal admitted that this “computation may fall short, as probably as it may exceed it.” This account also showed the larger ambitions of the Company, and of many Scots involved in the herring trade, when it posited that an industrial herring fishery could underwrite a dramatic increase in overseas trade and even gain an Atlantic colony. So, while a colony may still have been the end goal and way to fortune, herring provided a means to reaching that larger goal.¹⁰⁴

The ideas of the Company of Scotland were not that farfetched, and their ambition was quite common for fishing companies from the British Isles following the rhetoric of improvement and mercantilism. For instance, in 1695, the Company of the Royal Fishery of England, yet another of several failed attempts at establishing a chartered joint stock fishing company during this period, listed the advantages of a royal fishery. Like most companies from

¹⁰³ NRS, GD305/1/162/219, Various Proposals Overtures etc. the first whereof is “A short proposal for the African Company and Fishery 1700.”

¹⁰⁴ NRS, GD305/1/162/219, Various Proposals Overtures etc. the first whereof is “A short proposal for the African Company and Fishery 1700.”

this period, the Royal Fishery of England claimed that it would bring the country and company wealth and glory, and it could employ over 10,000 vessels in fishing and associated trades. What is important to note is that their pamphlet stated that the company could gain a renowned reputation in the West Indies from the fishing trade by trading their fish for other goods. This created opportunities for more integration into the West Indies trade markets and, therefore, fishing was the key to more trade.¹⁰⁵ It was also a key to fixing the current state of the country. Both Sibbald and the Company of the Royal Fishery of England claimed that “all our fishing towns [are] almost decayed,” or “destroyed and neglected” and that the associated industries with fishing “sail cloth, rops [sic], cables, anchors, nets, etc” are also in decay.¹⁰⁶ Although both groups were trying to sell a business idea and oversold some of the elements, and likely the extent of decay, the ideas that they sold were that given the right people or investment, herring fishing would improve all of the country.¹⁰⁷ This example provided an idea of the motivations for the Company of Scotland, and the other fishing companies, that by creating a herring fishing company the wealth of the world would soon await them.

Even after all of these failed attempts, William Paterson, writing at the beginning of the eighteenth century, argued that there was still a great wealth to be had in fisheries, especially herring.¹⁰⁸ Because herring could be found off the coast of Scotland, a Scottish herring fishery was better located and could bring in greater wealth than all other countries. Herring were “so naturally inherent” and “inseparable” from Scots who had an “inexhaustible” resource of herring.

¹⁰⁵ Company of the Royal Fishery of England, *A Discourse Concerning the Fishery Within the British Seas*, 22-23.

¹⁰⁶ Company of the Royal Fishery of England, *A Discourse Concerning the Fishery Within the British Seas*, 23; NLS, Sibbald, *Account of the Fishes on the Coast of Scotland*, 36.

¹⁰⁷ NLS, Sibbald, *Account of the Fishes on the Coast of Scotland*, 36.

¹⁰⁸ Paterson, *Writings*, Vol 1, Council of Trade, 37.

With this knowledge, Paterson wrote that the neglect of the herring fishing industry was “altogether inexcusable.”¹⁰⁹ What had prevented Scots from taking advantage of this seemingly abundant natural resource was a lack of capital investment and Paterson posited that Scottish fisheries were unlikely to ever recover through the attempts by private men.¹¹⁰ The only way to become successful in the herring trade was for it to be run or significantly supported by a state group operated by private individuals.¹¹¹ Here Paterson referenced one of the important topics of union debates at that time, that union could provide Scots and Scotland with such support.

Darien: Scotland’s Venture into the Atlantic

While these attempts at building a powerful salt and fishing company never fully materialized, the Company of Scotland still went forward with obtaining an overseas colony. Outfitting the Darien expedition was one of the most crucial factors determining its success versus failure, but the challenging economic, geopolitical, and environmental climate of the 1690s made this an even more arduous task. First, under pressure from the East India Company, the English Parliament had banned the Company of Scotland from operating in London and obtaining English investors for their projects. Then, in 1697, William Paterson and several other Company members went to Hamburg and Holland, two key trading centers in the North Seas World, to acquire new investors and to hire ship builders. The Company had expected significant additional investments from merchants in Hamburg, but Sir Paul Rycant, the minister to Hamburg from England, under orders from London, discouraged investing in the Company by highlighting the importance of the English cloth trade to the success of Hamburg merchants.¹¹²

¹⁰⁹ Paterson, *Writings*, Vol 1, Council of Trade, 39-40, 44.

¹¹⁰ Paterson, *Writings*, Vol 1, Council of Trade, 51-3.

¹¹¹ Paterson, *Writings*, Vol 1, Council of Trade, 53, 55.

¹¹² *The History of Caledonia*, 5-6.

Rycant's words worked and the Company had no success with investors in Hamburg and met a similar fate in Holland. They did, however, find builders for their ships in Holland and had five ready for their initial departure to Darien.¹¹³ On July 12, 1698, the first ships sailed out and they arrived off the coast of Darien on October 30, 1698.¹¹⁴ The colonists soon set up a port, a town center, and built some housing, but the colony struggled to sustain itself.

In August 1696, the Company had put Dr. John Munro in charge of gathering all provisions for the Darien expedition.¹¹⁵ Munro traveled throughout Scotland, in part to obtain the best prices, and because he struggled to find certain foodstuffs and trade items.¹¹⁶ The complaints from the settlers at Darien demonstrate that Munro failed in acquiring enough necessary supplies, or at least failed to obtain supplies that lasted long enough.¹¹⁷ After all, one of the biggest complaints from the settlers at Darien was the lack and poor quality of their provisions, and it was rumored throughout Scotland and the Atlantic that "bad provisions and cheating of the persons employed in packing up the provisions for Caledonia [Darien] has been the great cause of their [eventual] desertion."¹¹⁸ One observer who saw William Paterson shortly after he left Darien claimed that he looked more like a skeleton than a man.¹¹⁹ Other accounts claimed that

¹¹³ *The History of Caledonia*, 7.

¹¹⁴ The Scottish company took longer to send out its first ships than both the British and Dutch Indie trading companies. Clearly much thought went into the designs and perhaps too much time was spent waiting. Minutes of the board of directors, Leith, 12 Jul. 1698, *The Darien Papers*, 49-53.

¹¹⁵ RBS D/1/1, 9 Sep. 1696; Minutes of the board of directors, Edinburgh, 30 Sep. 1696, *The Darien Papers*, 23.

¹¹⁶ RBS D/1/1, 9 Sep. 1696; Minutes of the board of directors, Edinburgh, 30 Sep. 1696, *The Darien Papers*, 23.

¹¹⁷ Minutes of the board of directors on procurement of provisions, Edinburgh, 30 Jun.-13 Jul., 30 Sep., 18 Nov., 11 Dec. 1696, 27 Jan. 1697, *The Darien Papers*, 33-43.

¹¹⁸ NRS, GD406/1/4442, The earl of Tullibardine, Tullibardine, to [the duke of Hamilton], 12 Dec. 1699.

¹¹⁹ George Moffat, New York to board of directors, 12 Aug. 1699, *The Darien Papers*, 144-146, John Borland, Boston to Daniel Mackay, Edinburgh, 7 Sep. 1699, *The Darien Papers*, 153-154.

when other settlers from Darien arrived in Jamaica, the survivors literally sold the shirts off their backs for food and others went to plantations to work for food.¹²⁰ Paterson himself posited that as soon as he boarded the ships in Scotland the provisions were “exceeding low,” while other provisions rotted in the ship’s hold, and lasted only a few months.¹²¹

There were many problems with the Company’s supplies, and some of these stemmed from the dearth and scarcity of Scotland during the 1690s. As chapter five demonstrated, the climactic changes of the 1690s resulted in smaller and shorter harvests causing a period known as the ‘Ill Years’ from 1695-1700. In 1698, the Scottish Privy council stated that Scotland suffered from “not only a scarcity but a perfeit [perfect] famine which is more sensible than ever known in this nation.”¹²² The months after the harvest of 1698 were among the most desperate of the entire period of the Ill Years and for the settlers at Darien, it could not have happened at a worse time.¹²³ Right when the Company fitted ships to resupply its future colony, basic food items were increasingly difficult to find. When the board of directors in Edinburgh wrote to the colony about a resupply, they frequently explained that supplies were leaving Scotland as soon as they could, but times were very difficult in Scotland with disease and poverty and there was a scarcity of many goods needed to resupply the colony.¹²⁴ The marquis of Tweeddale mentioned the difficult time the Company had gathering supplies for the expedition, in part because of the problems in the country that had hindered their efforts.¹²⁵ The earl of Panmure wrote that the

¹²⁰ *Darien Papers*, 23, Dec. 1699, 209, 317.

¹²¹ Patterson, *Darien Papers*, 186.

¹²² Cullen, *Famine in Scotland*, 10.

¹²³ *Flying Post or The Post Master*, (London), 18 Oct. 1698; *Post Boy*, London, 3 Nov. 1698.

¹²⁴ The board of directors, Edinburgh to the Darien council, 24 Feb. 1699, *The Darien Papers*, 121-122.

¹²⁵ NRS, GD406/1/4415, The marquis of Tweeddale, Edinburgh, to [the duke of Hamilton], 15 Jun. 1699.

Company was short on bread because “the scarcity in the country [was] so that it was not ready to be had,” and that members of the Company went as far as London to acquire basic supplies for Darien.¹²⁶ Basil Hamilton argued that the reason outfitting the Darien expedition was so difficult was because the Scots were a poor nation in a hard time, describing the shortage both of provisions and specie during the end of the 1690s.¹²⁷

While the poor quality and dearth of supplies in Scotland certainly hurt the Darien expedition, various reports described the challenges the Company faced in sending healthy people to Darien. The earl of Panmure, explained to the duke of Hamilton in 1699 how the Company sent out fewer men than they intended to Darien because of the scarcity of provisions in Scotland. Panmure was “afraid they [the directors] will not be able to send so many [men] as you propose for tho there be no want of men yet there is such scarcity of provisions here that it would be hard to get as much as would but serve them for the voyage.”¹²⁸ As chapter five demonstrated the growing conditions in Scotland were poor, especially in the mid-1690s. This in turn affected the provisioning of the Darien expedition, but as Panmure stated, while it was easy to find willing colonists, many of them were already in poor health, which only worsened the provisioning situation.

As the Company of Scotland attempted to deal with the changing climatic conditions damaging Scottish agriculture, its ships also battled increased storminess. While it was typical for ships crossing the Atlantic in any direction to run into inauspicious conditions—take for example the numerous times storms destroyed Spanish treasure ships throughout the early

¹²⁶ NRS, GD406/1/4379, The earl of Panmure, Edinburgh, to [the duke of Hamilton], 6 Apr. 1699; NRS, GD406/1/4378, The earl of Panmure, Edinburgh, to [the duke of Hamilton], 27 Apr. 1699.

¹²⁷ NRS, GD406/1/6553, Lord Basil Hamilton, Hamilton, to the duke of Hamilton, 19 Apr. 1699.

¹²⁸ NRS, GD406/1/4383, The earl of Panmure, Edinburgh, to the duke of Hamilton, 2 May 1699.

modern period—the number of times the Company faced adversity because of the weather, was highly unusual. The period between 1685-1700 in the British Isles stands out for its increased intensity of winds, precipitation, and stormy weather.¹²⁹ Dennis Wheeler studied the frequency of storms from ship logs in the British Isles between 1685-1750 and created a gale frequency index. Wheeler’s index of gale frequency in the British Isles for 1685-1750 placed the average percentage of gale days per year at 11%. Between 1698-1700, the years that the Company of Scotland attempted to send settlers and supplies to Darien, the frequency of gales during Atlantic crossings was two to three times higher, with 1698 averaging approximately 38%. The first, third, and fifth highest percentage of the entire period occurred during these three years.¹³⁰

We can see some of the effects of this increased storminess through the Darien expeditions and resupplies. The initial journey to Darien was harsh with poor weather plaguing the ships from the time they left the Scottish mainland until after they passed around the northern Scottish islands.¹³¹ When the Company of Scotland sent out a resupply ship in February 1699, it sustained considerable damage at sea, which forced the colony to wait that much longer to be resupplied.¹³² Another ship sent out a year later to resupply Darien was delayed two months by bad winds near Orkney.¹³³ In another case, the directors had a ship ready to sail on 18 Aug. 1699, but because of the winds it did not leave until 24 Sept. To help alleviate the problem the

¹²⁹ Dennis Wheeler, “Atmospheric circulation and storminess derived from Royal Navy logbooks: 1685 to 1750,” *Climatic Change* 101 (2010): 257-280 (see especially 275); Additional data and examples are found in chapter 2.

¹³⁰ Wheeler, “Atmospheric circulation and storminess derived from Royal Navy logbooks,” 274.

¹³¹ Hector Mackenzie, Darien to Mr. Haldane, Gleneagles, Scotland, 21 Dec. 1698, *The Darien Papers*, 79.

¹³² The board of directors, Edinburgh to the Darien council, 24 Feb., 15 Apr. 1699, *The Darien Papers*, 122, 124-127.

¹³³ The board of directors, Edinburgh to the Darien council, 10 Feb. 1700, *The Darien Papers*, 263.

Company sent the colony credit to purchase items from merchants in English colonies in the Americas, and sent someone whom they called an expert in planting to the colonies, however, the credit and the planting help still had to travel by boat to get there.¹³⁴ Additionally, the Company's suggestion to the colony months after they landed in Darien was that their best hope of survival was to plant their own provisions and to support themselves because a steady stream of supplies may not be reliable.¹³⁵ Although rather grim for the settlers, it puts into perspective the challenges the Company faced, both environmentally and politically.

By the end of the 1690s, Scotland and England already possessed a strained relationship. From England's point of view, in the wake of the Nine Years War and signing of the 1697 Treaty of Ryswick, good Anglo-Spanish relations were crucial to maintaining the European balance of power, particularly with the impending death (as contemporaries saw it) of the severely disabled and sickly Charles II of Spain.¹³⁶ This geopolitical context will be discussed more fully in the next chapter, but for now, the Scottish settlement of Darien placed England in a difficult position. The Scottish settlers were still subjects of the English Monarch through the 1603 Union of Crowns (Scottish and English monarch was the same), however, by settling in Darien they acted in a manner that the Crown and English Parliament had not approved, at least outwardly. Furthermore, England did not want a war with Spain, nor did it want another company or Scottish colony competing directly with its own West Indies trade. Periodicals in

¹³⁴ The board of directors, Edinburgh to the Darien council, 24 Feb., 15 Apr. 1699, 13 Jun. 1700, *The Darien Papers*, 122, 124-127, 298.

¹³⁵ The board of directors, Edinburgh to the Darien council, 10 Feb., 13 Jun. 1700, *The Darien Papers*, 268, 297-298.

¹³⁶ The Darien settlers, board of directors, the French visiting Darien, and Captain Long all commented upon the importance of the area once Charles II of Spain died. In their accounts, his death was always imminent.

England expressed the opinion that intervening to help the Scots in Darien would “disrupt the peace of Christendom” and cause a war.¹³⁷

To help navigate this situation, Sir William Beeston, the governor of English Jamaica, sent a small sloop from Jamaica to trade supplies with the Darien colony under the command of Captain Long. Beeston’s main objectives were for Long to explore the colony and report back to London.¹³⁸ In his letter on Darien to the English Parliament, Long incorrectly claimed that the Scots had established their own gold mine as well as access to the abundant gold in Spanish territory near Darien and that they “are in such a crabbed hole that it will be difficult to beat them out.”¹³⁹ Long also demonstrated English interests in Darien when he claimed the other side of the isthmus for England. He too saw the value of this land and argued its importance as a transition between east and west. Long was worried about the area once Charles II died and wanted to make an English claim to it before anyone else did.¹⁴⁰ This isthmus between east and west (figure 6.5), had a significant trading importance for whichever European colony possessed it.

Take France, for instance. Darien and the surrounding areas could have been potentially important for its Indies trade, and, like the rest of Europe, France awaited the Death of Charles II of Spain. Many in Darien, like many in Europe, thought that once Charles II of Spain died then France would claim the throne of Spain thereby gaining control of all its New World possessions.¹⁴¹ One French ship Captain, Paussigo, confirmed many of the beliefs of the Darien colonists when he told them that France waited to settle this area once Charles II of Spain died

¹³⁷ *Flying Post or The Post Master* (London), 5 Nov. 1700.

¹³⁸ Captain Long, Jamaica to William III, London, 1699, *The Darien Papers*, 81-83.

¹³⁹ Captain Long, Jamaica to William III, London, 1699, *The Darien Papers*, 83.

¹⁴⁰ Captain Long, Jamaica to William III, London, 1699, *The Darien Papers*, 83-84.

¹⁴¹ Journal of Hugh Rose, Darien, 12 Dec. 1698, *The Darien Papers*, 75.

and that the arrival of the Scottish settlers surprised them.¹⁴² To the Darien colonists France looked like opportunists, much like the Darien colony itself. Nevertheless, the colony welcomed French ships because they brought potential supplies and news but were slow to trust them.¹⁴³

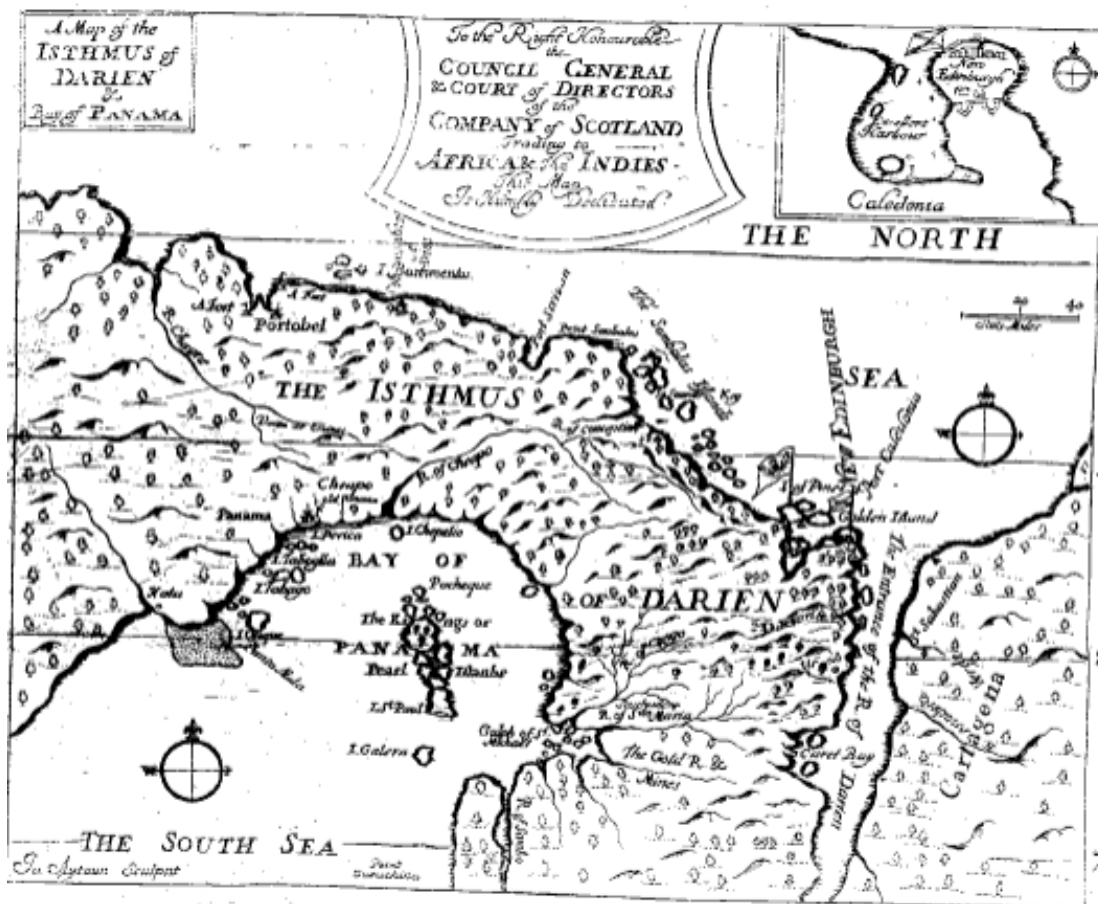


Figure 6.5. Lionel Wafer's Map of Darien.

Map From: Lionel Wafer, A short account from, and description of the Isthmus of Darien, where the Scots Collony are settled: With a particular map of the Isthmus and enterece to the river of Darien. According to our late news, and Mr. Dampier and Mr. Wafer, (Edinburgh: printed and sold by John Vallange, at his shop on the north-side of the street, a little above the Cross: and by James Wardlaw, at his shop in the Parliament Closs, 1699).

¹⁴² Journal of Hugh Rose, Darien, 23 Dec. 1698, *The Darien Papers*, 77.

¹⁴³ Board of directors, Greenock, Scotland to Council in Darien, 18 Aug. 1699, *The Darien Papers*, 141.

The Indigenous peoples living near Darien had their own political strategies as well. While the perspectives of the several Indigenous groups are coming from Scottish sources, reading between the lines suggests that Indigenous people were split between two groups, with parts helping the Scottish colonists and others playing one side against the other. The Scottish colonists thought that the Indigenous population was displeased with Spain and their treatment towards them, as Spanish troops had taken several people to work in the mines and several families were at war with the Spanish.¹⁴⁷ Yet, that did not mean that the Indigenous peoples wanted Scottish colonists to permanently live in Darien since they often presumed the Scots were privateers or temporary inhabitants. Nevertheless, because of their animosity towards the Spanish, several families regularly aided the Scots providing food, information, and some even fought against the Spanish, however, at least as many families, and likely many more, let the Scots and Spanish fight each other and awaited the outcome.¹⁴⁸

Spain too had its own interests in this region, not to mention it also claimed the land the Company of Scotland settled. Initially, Spain tried some more diplomatic attempts to retain possession of the Darien territory by lodging its complaints in London through the Spanish minister. In response to the settlement, the Spanish minister in London requested that the estates of the men responsible for the Company be seized, sold, and the profits given to Spain.¹⁴⁹ Because of the duke of Hamilton's involvement in the Company, the Spanish minister in London requested that Hamilton's estate be one of those seized and sold for Spanish reparations.¹⁵⁰

¹⁴⁷ *The Darien Papers*, 4, 7, 11, 21 Nov., 1, 2, Dec. 1698, 63-66, 69-73, 215.

¹⁴⁸ Journal of Hugh Rose, Darien, 21-22 Nov. 1698, *The Darien Papers*; *The Darien Papers*, 71-72, 215, 245, 248.

¹⁴⁹ Declaration of Robert Pinkerton and James Graham, 4 Jan. 1701; The board of directors Greenock, Scotland to the Darien council, 18 Aug. 1699, *The Darien Papers*, 111, 140-141.

¹⁵⁰ Declaration of Robert Pinkerton and James Graham, 4 Jan. 1701, Board of directors Greenock, Scotland to the Darien council, 18 Aug. 1699, *The Darien Papers*, 111, 140-141.

The Company attempted its own diplomatic approach. In response to the Spanish Ambassador's complaints in England, the Company had an advisor of "Indian affairs" look over the situation in Darien. According to the advisor, treaties signed between the colony and the Indigenous population would be a good step to secure rights to the land, but to strengthen the Company's claim it should buy the land from the Indigenous peoples.¹⁵¹ In addition, the Darien colony should set up as many huts as possible and put Indigenous peoples on as much land as possible to show that the Spanish did not have claim to the land in Darien, and the Company should try to do the same thing on the other side of the isthmus, the South Sea or Pacific side, to command complete control from coast to coast.¹⁵² A letter from Daniel McKay, a settler in Darien in 1698, puts the importance of Darien into perspective. McKay posited that Darien was fruitful and "best suited for trade." With control of Darien, "the Scots nation [will be] more considerable in the ballance [sic] of Europe than ever and you'l [sic] have such as settlement in the indies in a few years as scarce any European nation could bragg [sic] of in such a time."¹⁵³ Control over this isthmus and the small colony in Darien quickly became a 'global' affair, because, as McKay demonstrated, it could potentially have important economic significance.

After two settlement expeditions and because of poor governance, both at home and abroad, poor supplies, and attacks from the Spanish, the Scottish settlers deserted the colony by 1700. There have been many works exploring Darien. In the last twenty years, there averaged at least one peer reviewed article or book published on some aspect of Darien per year. For a more detailed account of Darien, the reader is directed to those, but some notable works include John

¹⁵¹ The board of directors, Greenock to Darien council, 18 Aug. 1699, *The Darien Papers*, 138.

¹⁵² The board of directors, Edinburgh to Darien council, 15 Apr. 1699, *The Darien Papers*, 128.

¹⁵³ NRS, GD26/13/101, Letter from Daniel Mckay [McKay], [settlement, New Caledonia, q.v.] Caledonia to the Earl of Leven, 28 Dec. 1698.

Prebble's exploration of the motivations of the Darien settlers. Prebble argued that greed and poor communication by the board of directors and the colonists resulted in the colony's failure.¹⁵⁴ More recently, disease has gained a stronger foothold in the debate. J. R. McNeill cited an account describing the death of colonists to yellow fever, but also acknowledged that it was difficult to distinguish the difference between most of the deaths based upon those accounts alone.¹⁵⁵ In all probability, several of these factors played a role. Certainly, better management, both in Scotland and Darien, could have helped the settlers become better organized or resupplied. In addition, malnourished bodies would have been more susceptible to disease. While those factors made it less likely that the colony would have endured in the long run, Spanish attacks and the subsequent burning of the colony ended the two-year endeavor at Darien.

Darien and Scotland's Economy

Darien was a significant attempt by Scotland to gain a hold of Atlantic trade and reposition its economy. Andrew Fletcher's *Two Discourses Concerning the Affairs of Scotland* (1698) pointed out the importance of the Darien expedition to Scotland's economic position writing that "all our hopes of ever being any other than a poor and inconsiderable people are embarked with them [the Company of Scotland and Darien]." There was a lot a stake in this venture and Fletcher posited that in order to keep up with the rest of the world, one had to be involved in a "great trade," and that if the trade in the Indies failed then it would most likely ruin

¹⁵⁴ John Prebble, *The Darien disaster* (London: Secker & Warburg, 1968).

¹⁵⁵ J.R. McNeill, *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620-1914* (Cambridge and New York: Cambridge University Press, 2010), 115-116, 119. Charles Mann's *1493* attempts to carry on McNeill's thread but oversimplifies much of the argument. See Mann, *1493: How Europe's Discovery of the Americas Revolutionized Trade, Ecology and Life on Earth* (London: Granta Books, 2011), 93-95.

the trade of the whole country.¹⁵⁶ A sermon from 1700, shortly after the collapse of the Darien project, preached by John Hamilton, a minister in Edinburgh, for the Duke of Queensberry, stated that the nation was “broken” and “crushed” because of the loss and undertaking for “advancing the trade of the nation.”¹⁵⁷ Clearly, Fletcher was right, that the failure of Darien hurt the Scottish economy. Yet, even before the struggles at Darien, the Scottish economy, based largely upon trade within the North Seas World, was floundering at the end of the seventeenth century. Darien simply compounded those preexisting problems.

By the 1690s, while Scotland struggled to produce goods for trade, Scottish specie became scarcer, in part because it left the country to purchase foodstuffs. Contributing to this problem was a revaluation of the Scottish currency in 1696, which decreased the value of Scottish currency in the country, occurring during the great scarcity in crops at the same time. So, while Scottish currency became devalued, more of its specie left the country to purchase foodstuffs to help with the scarcity. James Hamilton argued that as of November 1696, Scotland had spent over £10,000 sterling to purchase victual from England alone.¹⁵⁸ Only several years of a good harvest could have ended this, which failed to occur until after the turn of the century. Daniel Hamilton wrote that “our want of victual hath been the three channels that hath drained this countrie in so much that very little [specie] is left that will pass author in England or Ireland.”¹⁵⁹ Susan, countess of Dundonald, wrote in 1697 that specie “truly is a rare commodity

¹⁵⁶ NLS, Andrew Fletcher, *Two discourses concerning the affairs of Scotland*, Discourse 1 (1698), 10, 17.

¹⁵⁷ John Hamilton, *A Sermon Preached Before His Grace James Duke of Queensberry, &C. His Majesty's High Commissioner and the Honourable Estates of Parliament in the Parliament House Upon Sunday the 24th, Day of November 1700 By Mr. John Hamilton Minister at Edinburgh* (Edinburgh: Printed by James Watson, 1701).

¹⁵⁸ NRS, GD406/1/10848, [James Hamilton of Pencaitland], Edinburgh, to [the earl of Arran], 21 Nov. 1696.

¹⁵⁹ NRS, GD406/1/4153, Daniel Hamilton, Kinneil, to the earl of Arran, 25 Nov. 1696.

now here for I never saw such a poverty as here.”¹⁶⁰ Dugall Campbell wrote in October 1699, that tenants in Ardmadie and Kintyre had to pay their rents through labor because they had no coins to pay with.¹⁶¹ The situation had not improved with the collapse of Darien and William Keith summed up the position in Scotland at the beginning of the eighteenth century by telling the duke of Hamilton that the country is “lying sick in your [the Scottish Parliament’s] hands.”¹⁶²

To alleviate some of the economic pressures, Scotland, especially those in the Scottish Parliament, attempted to recoup some of its Darien losses. Even before the collapse of the colony, Andrew Fletcher had claimed that, since the union of crowns, the royal court “undermined” Scottish companies and brought up the “affair in hamborough [Hamburg]” as evidence to show how it happened again.¹⁶³ As the directors and the Scottish Parliament looked back retrospectively, they found many reasons to argue that England was against them. They remembered how the English Parliament had banned all Englishmen from investing in the Company of Scotland in 1695, denying the Company potential investors. They remembered it reoccurring in 1697 when the Company sent men to Hamburg, searching for investors from the significant merchant community there and Sir Paul Rycant, the English minister to Hamburg, under orders from London, discouraged investors by implying that the lucrative cloth trade between the two cities could quickly end. In fact, Scottish Parliamentary records stated that Rycant said helping Scotland would not be to the liking of King William, that investing in the

¹⁶⁰ NRS, GD406/1/6390, [Susan, countess of Dundonald], Edinburgh, to the earl of Arran, 7 Jan. 1697.

¹⁶¹ NRS, GD112/39/179/3, Dugall Campbell, Ardmadie, to Breadalbane, 14 Oct. 1699.

¹⁶² NRS, GD406/1/4814, W[illiam] K[eith], London, to the duke of Hamilton, 24 Jun. 1702.

¹⁶³ NLS, Andrew Fletcher, *Two Discourses Concerning the Affairs of Scotland*, Discourse 1, 15.

Company was an affront, and Hamburg would not fail to resent it.¹⁶⁴ According to Paterson, because of Rycant, the Company found no investors in Hamburg.¹⁶⁵

Furthering the anger of members of the Scottish Parliament, merchants, and members of the Company of Scotland towards England was when Sir William Beeston, governor of Jamaica, issued his proclamation sent from England in April 1699, which stated that no English colony could assist Darien.¹⁶⁶ This was after he had sent Captain Long to observe the Scottish colonists on Darien. Because of these actions, the Company called the behavior of their neighbor nation “disturbing” and engaged in a legal battle to get support for the colony.¹⁶⁷ They sent Basil Hamilton to speak with William III on its behalf, but he was denied audience with the king.¹⁶⁸ Although William III did not see them, he looked at their letters and responded that Darien would be able to trade with British colonies once the English Parliament approved it, but the English Parliament had not done so by the time the colonists abandoned Darien.¹⁶⁹

During the first years of the eighteenth century, the Scottish Parliament repeatedly petitioned William III and then Queen Anne for payment of damages caused by England to the Company.¹⁷⁰ In October 1700, William III wrote to the Scottish Parliament that he would approve any act that sought a reasonable way for reparation of the Company’s losses, but he

¹⁶⁴ Scotland, *Acts of the Parliaments of Scotland*, Vol. X, 249; *History of Caledonia* (1699), 5-6.

¹⁶⁵ *History of Caledonia*, 7.

¹⁶⁶ William Beeston, *By the Honourable Sir William Beeston Kt. His Majesties Lieutenant Governour and Commander in Chief, in, and Over This His Island of Jamaica, and Other the Territories Depending Thereon in America, and Vice-Admiral of the Same. A Proclamation* (Edinburgh: s.n., 1699); Board of directors, Greenock, Scotland to the Darien council, 18 Aug. 1699, *The Darien Papers*, 140-141.

¹⁶⁷ The board of directors, Edinburgh to Darien council, 10 Feb. 1700, *The Darien Papers*, 264.

¹⁶⁸ Basil Hamilton, London to the board of directors, 29 Jan. 1700, *The Darien Papers*, 255-6.

¹⁶⁹ *To His Grace His Majesty's High Commissioner and the Right Honourable the Estates of Parliament. The Humble Representation and Petition of the Council-General of the Company of Scotland Trading to Africa and the Indies* (Edinburgh: s.n, 1700), 1-2.

¹⁷⁰ Scotland, *Acts of Parliament of Scotland*, Vol. XI, 166-168.

failed to specify what reasonable meant.¹⁷¹ In addition, William III stated that he and the English Parliament were sorry for the Company's losses and for the obstacles the English Parliament put in the way of the Company. He assured the Scottish Parliament that England was willing to join any Scottish trading expedition, provided they agreed to "provide proper and competent supplies for such forces as shall be necessary for the kingdom's security and to maintain it in its present happy settlement."¹⁷² William III's statements further exasperated the situation and did little to resolve it as Scotland could not afford to send out another colony when Darien removed so much specie. The Scottish Parliament and the investors of the Company doubted the sincerity of William III's offers and his acknowledgement that the Company sustained damages because of the actions of the English Parliament served only to justify their anger.¹⁷³ Whether he intended to see through these actions is unknown, because he died unexpectedly in 1702 and Anne Stuart came to the throne. Anne, like William III, was willing to approve any reasonable act to repay Scotland for the damages it sustained, although many contemporaries doubted her sincerity as well.¹⁷⁴

The Scottish monetary crisis peaked in December 1704 when the Bank of Scotland shut its doors.¹⁷⁵ Scotland had switched from solely a specie economy to a mix of paper and specie in 1696. With Darien removing one quarter to one half of the specie in the country, paper money

¹⁷¹ Scotland, *Acts of Parliament of Scotland*, Vol. X, 201-202.

¹⁷² William's letter to Scottish Parliament, 4 Oct. 1700, in *Acts of Parliament of Scotland*, Vol. X, 201-202,

¹⁷³ Scotland, *Acts of Parliament of Scotland*, Vol. XI, 13b.

¹⁷⁴ Scotland, *Acts of Parliament of Scotland*, Vol. XI, 13b; John Clerk and John Miller Gray, *Memoirs of the Life of Sir John Clerk of Penicuik, Baronet, Baron of the Exchequer, Extracted by Himself from His Own Journals, 1676-1755* (Edinburgh: Printed at the University Press by T. and A. Constable for the Scottish history Society, 1892), 57.

¹⁷⁵ Richard Saville, *Bank of Scotland A History, 1695-1995* (Edinburgh: Edinburgh University Press, 1996), 46.

became useless without specie to back it up. When the Bank of Scotland shut its doors, it held debts valued at £13,000 sterling.¹⁷⁶ On December 18, 1704, the Bank of Scotland stopped buying back paper money and issued no bonds for the next two years.¹⁷⁷ This demonstrated how scarce money was in Scotland and how few people were in a position to pay their debts since the bank closed despite holding more in debts than it owed. With the Bank of Scotland shutting its doors, this only added to the country's economic troubles.

John Law's *Circumstances of Scotland* (1705) put into perspective what was on the minds of many in Scotland as the scarcity of specie and money continued late into 1705.¹⁷⁸ Law discussed the "balance of trade" within Europe and within specific countries and pointed out several winners and losers of this balance of trade.¹⁷⁹ Scotland was not winning as Law argued that the specie spent on imports outnumbered the specie returned from exports by £50,000 a year.¹⁸⁰ He argued that the greatest causes of this imbalance occurred with Scottish trade with England and France. From 1691-1705, Scottish merchants catering to the limited market of landed elites who could afford this, imported luxury goods, many of which originated in Atlantic colonies, including tobacco, furniture, sugar, and coaches, but England only accepted specie for these goods, which further ruined the value of Scottish paper money.¹⁸¹ Scotland also gave France £100,000 in specie for many of these same goods in addition to wine and brandy and

¹⁷⁶ NRS, GD406/1/5081, letter to the duke of Hamilton, 19 Dec. 1704.

¹⁷⁷ Saville, *Bank of Scotland*, 46-54.

¹⁷⁸ NRS, GD406/1/6732, The duke of Atholl, Dunkeld, to his brother-in-law the duke of Hamilton, 30 Sep. 1705.

¹⁷⁹ John Law, *The Circumstances of Scotland Consider'd, with Respect to the Present Scarcity of Money Together with Some Proposals for Supplying the Defect Thereof, and Rectifying the Ballance of Trade* (Edinburgh: Printed by James Watson, 1705), 24.

¹⁸⁰ Law, *The Circumstances of Scotland*, 5.

¹⁸¹ Scotland, *Acts of Parliament of Scotland*, Vol. XI, 11 Jul. 3 Aug. 1704, appendix 38-39; Law, *Circumstances of Scotland*, 8, 15, 18.

received little specie in return.¹⁸² Making the situation even worse was that only one sixth of the £2,200,000 of specie minted in Scotland since the re-coinage act in 1686 remained in Scotland by 1705.¹⁸³ John Law blamed much of this on the famine which sent out much specie and also on the poor economic circumstances that the country faced because of Darien, which outfitting it saw “great sums [of specie] sent abroad” as well as recent warfare.¹⁸⁴

William Seton of Pitmedden, a member of the Scottish Parliament, gave a speech to the Scottish Parliament in 1706 summarizing what he saw as Scotland’s economic position at the beginning of the eighteenth century. Seton’s speech, which built upon ideas from several popular pamphlets published in the previous five years, makes clear that Scotland’s economy was not prospering in the North Seas World. His speech described how Scotland failed to meet several key principles of mercantilism and the European balance of trade. Specifically, it was “behind all other nations of Europe” regarding foreign trade. Scotland was “poor and without Force to protect it’s [sic] commerce.”¹⁸⁵ Seton then went through what options Scotland had to improve its “balance which arises from the change of our natural or artificial product with other places [i.e. trade].”¹⁸⁶

First, Seton detailed a hypothetical trading alliance with Holland. Yet, Seton claimed, this was an unlikely trading partner since they relied upon the sea and fishing as much as Scotland would and Holland would not “suffer us to improve our fishery.”¹⁸⁷ The next option was England

¹⁸² Defoe, *A Collection of Original Papers Concerning the Union*, 235, 437.

¹⁸³ Law, *Circumstances of Scotland*, 15, 21. Law also experienced the failures of another attempted scheme when he oversaw France’s Mississippi Company in 1718.

¹⁸⁴ Law, *Circumstances of Scotland*, 4.

¹⁸⁵ William Seton of Pitmedden, *A Speech in the Parliament of Scotland. The Second Day of November 1706. On the First Article of the Treaty of Union* (Edinburgh: Andrew Bell, 1706), 3.

¹⁸⁶ Seton, *A Speech in the Parliament of Scotland*, 4.

¹⁸⁷ Seton, *A Speech in the Parliament of Scotland*, 5.

as a trading ally. For Seton, this would not work because England had similar exports that Scotland had; cattle, linen, and wool. In addition, Seton argued that England would be “jealous of our increase in power,” and less inclined to help, especially given the geopolitical and economic tensions of mercantilism’s limited power.¹⁸⁸ For Seton, the last realistic option was France, however, Seton posited that shortly after this trading alliance began it would soon turn political. This would inevitably lead to a war with England and then all trading advantages would be lost.¹⁸⁹ The rest of Europe was not a viable option, as Seton argued that a trading alliance with “Muscovy, Denmark, Poland, Germany, France, Spain, Portugal, and Italy,” would not amount to much since the Dutch and English could outproduce and make a better quality item than the Scots could.¹⁹⁰ He concluded that there was little hope to expand Scottish trade while remaining separated from England, so it was better to join with them and into a larger market, though what that union looked like, Seton still had some uncertainties.¹⁹¹

Seton was not alone in seeing fewer options for Scotland trading within a North Seas World. Daniel Defoe, for instance, would later follow this up and show how colonies in the Atlantic would vastly improve Scottish trade.¹⁹² Because an economic union with England offered the potential to provide financial and state support to trade, especially for herring fishing companies, as well as access to larger markets, enough members of the Scottish Parliament saw a potential benefit to discuss the terms of an economic union, or if nothing else, a trading alliance with England, by 1705. With the mercantilist ideas of the time, Scotland had fallen behind in the

¹⁸⁸ Seton, *A Speech in the Parliament of Scotland*, 5.

¹⁸⁹ Seton, *A Speech in the Parliament of Scotland*, 5.

¹⁹⁰ Seton, *A Speech in the Parliament of Scotland*, 4.

¹⁹¹ Seton, *A Speech in the Parliament of Scotland*, 5.

¹⁹² Daniel Defoe, *A Fifth Essay, at Removing National Prejudices: With a Reply to Some Authors, who have Printed their Objections Against an Union with England* (Edinburgh: n.l., 1707).

European balance of trade and herring provided seemingly endless opportunities to reposition Scotland within this balance. The financial and military support that a union offered was the opportunity for some to improve Scotland through trade. While the debates over this union would ensue over the next several years, it meant little if England was unwilling to enter such an alliance or union as well.

CHAPTER 7

The Great Storm of 1703 and the Shifting Anglo-Scottish Balance of Power

While commenting on the Great Storm of 26-27 November 1703 Great Britain's most famous writer from this era, Daniel Defoe, wrote that "indeed the city [London] was a strange spectacle the morning after the storm... the streets lay so covered with tiles and slates, from the tops of houses, especially in the out-parts, that the quantity is incredible: and the houses were so universally stripped, that all the tiles in fifty miles round would be able to repair but a small part of it."¹ Subsequent histories of this 'Great Storm' of 1703 (Lamb and Frydendahl 1991, Brayne 2002, Wheeler 2003, and Pfister 2010), verifies that it was indeed a storm of extreme size and consequence, which caused considerable damage to much of southern Britain. However, these recent histories also reveal that this storm was by no means unique in its ferocity during this period, but was in fact an exemplar of severe storms that struck the British Isles during the final years of the Global Little Ice Age. Defoe himself alluded to this in his account of the Great Storm of 1703 citing the storms of 1661, 1674, and 1675 as comparable. In addition, Dennis Wheeler argued that the first half of the period 1685-1750 saw a marked increase in gales and storms and Lamb argued that although the Great Storm caused great damage, it was not the strongest storm during that period or even within the last 10 years, as 1694 had a storm with a higher severity based upon their rankings.² So while the Great Storm of 1703 was indeed great in

¹ Daniel Defoe, *The Storm: Or a collection of the Most Remarkable Casualties and Disasters which Happen'd in the Late Dreadful Tempest Both by Sea and Land* (London: Printed for G. Sawbridge, 1704), 72.

² H. H., Lamb, and Knud Frydendahl, *Historic Storms of the North Sea, British Isles, and Northwest Europe* (Cambridge and New York: Cambridge University Press, 2005), 59; Christian Pfister, Emmanuel Garnier, Maria-João Alcoforado, Dennis Wheeler, Jürg Luterbacher, Maria

strength and in the damage caused, it was not without recent precedent. What made the storm of November 1703 so Great, in the minds of contemporaries, was its timing.

The Great Storm occurred during the initial stages of the War of the Spanish Succession (1701-1714), continued controversy over the succession of the British crown, and a period of increasingly intense union negotiations between England and Scotland. The historiography of the Great Storm tends to emphasize its importance in the ongoing War of the Spanish Succession, particularly the role that the storm played in weakening England in relation to its continental enemies. George Macaulay Trevelyan (1930) argued that the storm nearly broke English naval supremacy in the northeastern Atlantic and almost cost them the war.³ More recently, Vladimir Jankovic (2000), Jan Golinski (2007), and Christian Pfister et. al. (2010) noted how after the storm, learned observers in England quickly became aware of the difficulties this storm created, especially the loss of sailors and supplies.⁴ In one of the more detailed works on the storm since Defoe, Martin Brayne (2002) curiously argued that it was unsurprising that the storm had been cast aside by historians, because although it caused much damage, it was temporary and “was of no lasting significance.”⁵ Like those before him, Brayne argued that the storm was remembered

Fatima Nunes, and João Paulo Taborda “The Meteorological Framework and the Cultural Memory of Three Severe Winter-Storms in Early Eighteenth-Century Europe” *Climatic Change* 101 (2010): 286; Dennis Wheeler, “The Great Storm of November 1703,” *Weather* 58 (2003): 419-27.

³ George Macaulay Trevelyan, *England Under Queen Anne* (London: Longmans, Green and Co., 1948 [1930]), 307-8.

⁴ Vladimir Janković, *Reading the Skies: A Cultural History of English Weather, 1650-1820* (Chicago: University of Chicago Press, 2001), 61-64. Pfister et al. “Cultural Memory of Three Severe-Winter Storms”; Jan Golinski, *British Weather and the Climate of Enlightenment* (University of Chicago Press, 2007), 43-60. Golinski argued that it became perceived as a distinctly English event.

⁵ Martin Brayne, *The Greatest Storm: Britain's Night of Destruction, November 1703* (Thrupp, Stroud, Gloucestershire: Sutton, 2002), X.

because it damaged the navy at a perilous time and focused on how the storm damage affected England's military standing in the War of the Spanish Succession.⁶

While these works and several others have covered the Great Storm in England extensively, missing from them is a discussion of the Union with Scotland and the role that the Great Storm played in Anglo-Scottish relations. This chapter explores that topic by tracing the developing political relationship between Scotland and England from 1702 to 1704 while they attempted to settle the succession of the British crown, cultivated the idea of negotiating a union, and jointly fought a major war on the Continent. This chapter directly challenges Brayne's claim that the storm had no lasting significance, especially when looking at the relationship between Scotland and England. Through the actions of the English Parliament, ministry, and court, the Scottish Parliament, and archival records, this chapter makes the novel argument that the Great Storm was also significant in shaping the Anglo-Scottish Union debate by bringing both sides to the negotiating table. This case demonstrates the relevance of weather, climate, and environmental history to military and political histories, particularly because it highlights the importance of contingency in political and military affairs. As this dissertation has repeatedly demonstrated, the environment is as much an aspect of *histoire evenementielle* as it is the *longue durée* history of early modern oceanic worlds. Protecting England's northern border and securing the line of succession were two major topics that pushed the English Parliament, English ministers, and the Royal Court towards union with Scotland. Yet, it was not until the fall and winter of 1703-04, immediately after the Great Storm of November 1703, that the English side recognized much urgency to complete a union, which ultimately cleared the way for the Scottish Parliament to vote on the issue in 1705 and to finalize the Union in 1706-07.

⁶ Brayne, *The Greatest Storm*, 17.

Anglo-Scottish Union in the European Balance of Power

In 1702, two events abruptly altered the political relationship between Scotland and England. The first was the English declaration joining the War of the Spanish Succession. In 1700, Charles II, the last Spanish Habsburg monarch died without a clear heir. With its monarch's death, the Spanish crown had two main contenders; the Bourbon, Philip of Anjou, the grandson of Louis XIV of France's House of Bourbon or a member of the Austrian Habsburgs, the future Austrian monarch Charles VI. The prospect of a united Bourbon dynasty ruling the French and Spanish empires was ill received by William III and the allies of the Grand Alliance, who had just fought a nine-year war aimed at limiting French expansion in Europe, the Americas, and India (1688-97) and had twice attempted to divide the Spanish empire through treaties (1698 and 1700) with Louis XIV and France upon Charles of Spain's death.⁷ As a result of Philip of Anjou being named King of Spain in May 1702, England, along with Scotland, the Dutch, and several other allies, formed another 'Grand Alliance' against Bourbon Spain and France and invaded Spain later that year, igniting the War of the Spanish Succession.

The main goals of the 'Grand Alliance,' at least from the English perspective, were to prevent the unification of Bourbon France and Spain and all this entailed for the international balance of power, not only in Europe, but also in Asia and the Americas. Spain had emerged as an important ally during the twilight of Habsburg rule, and English merchants and the English Parliament were desirous of continued protection and the expansion of trade in Spanish territories. Finally, all English parties wanted French recognition of the Protestant succession in

⁷ Henry Kamen, *The War of Succession in Spain 1700-15* (Bloomington: Indiana University Press, 1969), 3; Christopher Storrs, "The Union of 1707 and the War of the Spanish Succession," *The Scottish Historical Review* 87 (2008): 32.

England and subsequently in Scotland.⁸ This last position ties into the second event that altered the political relationship between Scotland and England, which was the death of William III and with it the ascension to the throne of Anne Stuart on 9 March 1702, the last Protestant Stuart heir to the throne. As we have seen, religion had long been a divisive topic between Scotland and England and between other Protestant and Catholic European powers. The War of the Spanish Succession helped to reignited this controversy as it had both sides largely split between Catholic (Spain and France) and Protestant ('Grand Alliance').⁹ In the British Isles, this conflict had most recently come to a head when the Dutch stadtholder William III of Orange, a Protestant, defeated James II, a Catholic, for control of the Scottish and English thrones during the so-called 'Glorious Revolution' of 1689, in which William agreed to rule jointly with Mary II. As a part of this battle, one concession William gave to the Scottish Parliament regarding control of the Scottish throne was that the Scottish Parliament obtained the right to choose Scotland's successor. With the accession of the now childless Anne, the Protestant daughter of James II, as Queen of England, Ireland, and Scotland after William's death in 1702, it meant that Scotland and England would eventually have to agree upon another monarch.

The problems for Anglo-Scottish relations in 1702 centered on these two events and they both led to discussion of a union. Prior to Anne's ascension to the throne, there had been some efforts to come to an agreement upon union. In 1603, there was the Union of Crowns which saw James VI of Scotland become James I of England, thus creating a system of one monarch jointly

⁸ Jamel Ostwald, "Creating the British way of War: English War Strategy in the War of the Spanish Succession," in eds., Williamson Murray and Richard Hart Sinnreich, *Successful Strategies Triumphant in War and Peace from Antiquity to the Present* (Cambridge and New York: Cambridge University Press, 2014), 106; Alan David Francis, *The First Peninsular War, 1702-1713* (New York: St. Martin's Press, 1975), 18-21.

⁹ Portugal was a major exception to this.

ruling both kingdoms. James attempted to unite the two kingdoms under the same parliament and government, but this did not come to fruition. Other attempts to complete a union between the two kingdoms occurred during the civil wars and interregnum in the 1640s and 1650s, and although a united parliament did meet under Oliver Cromwell, Scotland and England remained, for the most part, separate politically.¹⁰ From 1668-70, Charles II again attempted to unite the Parliaments of the two kingdoms, but little came of it. The same was true for the joint monarchy of William III and Mary II in the 1690s. Despite these ongoing failures in uniting the two kingdoms, William III believed that a union was important for England given the situation on the Continent, and in 1702 just before his death stated to the House of Lords that nothing would “contribute more to the present and future peace security and happiness of England and Scotland than a firme and Intire Union between them.”¹¹ Yet this view was not widely shared, especially in the English Parliament or English Ministry.

Early on in Anne’s reign, James Douglas, the fourth Duke of Hamilton, who was one of the largest land holding families in Scotland and an important figure in Scottish politics at the time, along with several of his Scottish Parliamentary supporters, butted heads with Anne over her April 1702 proposal for union. In response, the Duke of Hamilton wrote that he was not against the idea of union but was adamant that certain limitations and terms that England offered to Scotland in a union would not be accepted or tolerated.¹² The response from the Duke of Hamilton was not one that Anne and the Royal Court had hoped for and the relationship between

¹⁰ Whatley, *Scots and the Union*, 5-8, 38.

¹¹ NRS, GD406/1/5019, William III to the house of lords 1702; NRS, GD406/1/6578, The duke of Hamilton, Hamilton, to the earl of Marlborough, 16 Mar. 1701/1702.

¹² NLS, MSS 7036/125.

the two only soured after this point, largely centering on the Duke of Hamilton, amongst others, standing in the way of union.¹³

Despite some Scottish opposition, in late November 1702, with the approval and assertion by Queen Anne, commissioners from Scotland and England met to discuss the possibility of a union. Because of their disagreements, the Duke of Hamilton was not selected for the Scottish contingent and the head of the Scottish commissioners was James Douglas, second Duke of Queensberry, who the Royal Court and the English Parliament liked, or at least tolerated. Not all Scots were as enthused with Queensberry; for instance, Charles, the earl of Selkirk, argued that Queensberry was appointed commissioner only because “the [House of] Lords trust him more than any other scots man.”¹⁴ It was also suggested that the English Parliament “support queensburry still as being the propoest tool to work their designs in Scotland” and that they would recruit other members of the Scottish Parliament if needed.¹⁵

The 1702 negotiations started out well for both sides. The Scottish contingent, led by Queensberry, listed their three major desires from a union: to permanently unite the two kingdoms under one monarch, to form one unified parliament representing both kingdoms, and most importantly, from the perspective of the Scottish contingent, to enforce mutual communication of trade, with all the legal privileges and advantages that came along with it. In addition, Queensberry stated early on that the Scottish contingent, as well as the Scottish Parliament, was willing to agree to the English choice for succession, or the next heir to the

¹³ NRS, GD406/1/9698, The duke of Hamilton, Hollyroodhouse, to his mother Anne, duchess of Hamilton, 29 Jun. 1702; see also NRS, GD406/1/4996, Roderick McKenzie to the duke of Hamilton, 17 Jul. 1702.

¹⁴ NRS, GD406/1/6563, [Charles, earl of Selkirk], Crauford, to his brother the duke of Hamilton, 14 May 1704.

¹⁵ NRS, GD205/34/4/2/1-28, Bennet of Grubet Papers; 1696-1729, for laird of Grubet younger, 2 Mar. 1704.

Scottish throne. While the union negotiations appeared to go smoothly over the topic of the succession and a single parliament, the two sides split drastically over trade and for much of these negotiations, even at the first meeting, the controversy over trade and national debt was the critical point.¹⁶

This debate centered over what ‘equal’ trade meant to both parties. A principle factor in this discussion was the debts of each country. Although the Scottish economy had performed quite poorly over the previous decade, the Scottish government held a much smaller national debt compared to England. One estimate by William Paterson, founder of the bank of England and member of the Company of Scotland, listed English governmental debts at over £20,000,000 (circa 1705) in comparison to Scotland’s national debts of £60,000 sterling. This was due in part to the large sums the English government owed to the Bank of England, paid out to help support the East India Company, coal fund, and lottery funds.¹⁷ The coal fund alone was more the four times that of the Scottish government’s total debt.

The Scottish delegation refused to take on a sizeable portion of the debt of the English government. The English delegation likewise was unwilling, or very hesitant at best, to allow Scottish merchants to have access to income from colonial plantations in the Americas and the trade associated with it.¹⁸ Scottish public opinion of England was not high at this point as many were still upset about the loss of Darien and the perceived role that England, and especially the English Parliament, played in its failure, which made restricting access to plantation trade even

¹⁶ NRS, PA18, Journals of the Commissioners for Union of the Kingdoms 1702-1706, 25 Nov. 1702.

¹⁷ William Paterson and Saxe Bannister, *The Writings of William Paterson, of Dumfrieshire, and a Citizen of London Founder of the Bank of England, and of the Darien Colony* Vol. 1 (London: Judd & Glass, 1859), 222-23.

¹⁸ NRS, PA18, Journals of the Commissioners for Union of the Kingdoms 1702-1706, 5, 9, 14 Dec. 1702.

more frustrating for the Scottish delegation who claimed that what happened at Darien would discourage all Scottish trade in the region for a very long time and some reparation by England was necessary for what had happened.¹⁹

In response to the Scottish delegation's arguments about debts, the English delegation replied that much of its debt was from foreign wars, such as the Nine Years' War (1688-97), that had been fought for the benefit of Scotland, and, because of this, Scotland was obliged to pay its share of the debt.²⁰ The English delegation's response to Scottish concerns was that a complete union, meaning one where Scotland took on some of these debts, would be the only way that union could occur. Because of this, the Scottish delegation came to believe that by joining the union they would have to take on a large amount of English debt, what they saw as a disproportionate amount, and that they would not see any immediate advantages in a union.²¹ One solution the Scottish delegation offered was for Scotland to receive a lump payment, in part for the Darien damages and to help offset the 'English' debts that they could be burdened with. They argued that these funds could then be utilized "for the encouragement of fishing and trade and manufacturies in Scotland that out of some of the effectual branch of the revenue arising from that part of Britain now called Scotland there be [£]10,000 yearly after completing the union appropriated towards carrying on the fishery and improving the manufactories and native

¹⁹ NRS, PA18, Journals of the Commissioners for Union of the Kingdoms 1702-1706, 5, 9, 14 Dec. 1702.

²⁰ NRS, PA18, Journals of the Commissioners for Union of the Kingdoms 1702-1706, 14, 23-28, Dec., 21 Jan 1702/3; see also The National Archives, Kew, SP 54/2, 39.

²¹ NRS, PA18, Journals of the Commissioners for Union of the Kingdoms 1702-1706, 25 Jan. 1703.

product.”²² During the negotiations of 1702 and into 1703, little came of this suggestion, but it opened the door for including reparation payments for Darien in future negotiations.

By late January 1703, both parties reached an impasse and were far from finding a way to see the other as a financial ‘equal.’ Understanding what ‘equal’ meant regarding trade, access to trade, and debts became too much to settle in that session. In early February, Anne wrote the negotiators commending them on their progress thus far and called for an end to the meetings with a desire for their continuance sometime in October.²³ It was two years before they met again.

Although some considerable progress was made, the conversation between the two delegations demonstrated that although Anne was supportive of a union and these negotiations, the English delegation lacked her enthusiasm for the project. The ledger books that documented their meetings in London noted several times when the Scottish delegation was prepared to meet and discuss a union and the English delegation failed to show up, or at least they lacked enough members to hold a meeting. The positive views of union held by Anne, Queensberry, and the Scottish delegation could not be any more different from the mood in each of their respective parliaments in 1703.

1703

While Anne and much of her court were eager to enter union negotiations, the English Parliament and English ministry was less than willing. In March 1703, the House of Lords listed their priorities in general, which began with settling the succession, or naming who would take the English throne after Anne’s death. In doing so they posited that every effort should be made

²² NRS, PA18, Journals of the Commissioners for Union of the Kingdoms 1702-1706, 18, 25 Jan. 1703.

²³ NRS, PA18, Journals of the Commissioners for Union of the Kingdoms 1702-1706, 3 Feb. 1703; see also The National Archives, Kew, SP 54/2, 52.

to ensure that this followed the 1701 Act of Settlement naming as heir princess Sophia of Hanover and most importantly was a Protestant. Only after securing the succession, which meant Scotland agreeing to those terms as well, would the House of Lords “do all in their power to promote an intimate union between the two kingdoms for their mutual security and advantage.”²⁴ Reports out of London in March 1703 stated that members of the English Parliament were unhappy about parts of the union negotiations that occurred the previous winter and wanted certain clauses removed.²⁵ Another report blamed the lack of parliamentary support on the Whig party, which held a majority in the House of Lords, which was seemingly against a union and already had a rocky relationship with Anne because of her leanings in favor of the Tory party early in her reign.²⁶ Under Anne, the two party political system began to solidify with the Whigs and Tories, although Anne often claimed to avoid pandering to either side, the reality was that she chose the side(s) most likely to advanced her policies.²⁷ As we will see for much of the union negotiations and debates, party politics was important in both England and Scotland and Anne’s leanings towards the Tory party, especially within her Ministry, won her little support from the Whig party who controlled Parliament, at least early in her reign. The Tory party was against participation in the war of the Spanish Succession, the marked exception of Tories on Anne’s

²⁴ NRS, GD26/7/243, Resolution of House of Lords, 22 Mar. 1703.

²⁵ NRS, GD406/1/5051, ‘T.B.’, London, to the duke of Hamilton, 27 Mar. [c1703].

²⁶ I.S. Leadam, William Hunt, and Reginald Lane Poole, *The Political History of England Vol. 10 The history of England from the accession of Anne to the death of George II, 1702-1760* (New York: Greenwood Press, 1969), 27-37; NRS, GD406/1/5051, ‘T.B.’, London, to the duke of Hamilton, 27 Mar. [c1703]; This was in part because of her strong belief in the Anglican Church, which represented Tory views of religion, whereas as Whig views of religion generally reflected Protestant toleration.

²⁷ George Macaulay Trevelyan, *England Under Queen Anne Vol I* (London: Collins, 1965), 170-183.

Ministry who supported it, which greatly complicated funding and strategy.²⁸ Although those party splits made politics rather interesting, it also slowed down or deterred many measures trying to go through Parliament. At this point, support for union in the English Parliament, and even in the English ministry was lukewarm at best.²⁹

The situation in the Scottish Parliament was even worse for Queensberry and the Scottish delegation. Queensberry was already disliked by Hamilton and his followers after the previous year when Queensberry failed to call a parliament within 20 days of William's death as decreed in the 1696 Act of Security.³⁰ In addition, those in Scotland who wanted a union, and even some of those against it, utilized the power the Scottish Parliament had to choose its own successor on the death of Queen Anne to their advantage in union negotiations. Many of those were members in the Scottish Parliament of 1703 that were upset that Queensberry, who had immediately agreed to follow the English succession during the 1702 union negotiations, seemingly gave away their best bargaining chip. This included the Duke of Montrose and the Duke of Hamilton who both felt that this cost Scotland dearly in those negotiations and was part of the reason there was so much difficulty in getting what they viewed as an equal share in English trade. Montrose called the treaty as it stood in 1703 "sad and dishonourable."³¹ Hamilton argued that "we should be stupid fools I shall not call it worse, not to demand reparation of the wronges they have doe us nor a communication of trade which they value so much as is necessary for us... For when they

²⁸ See Margaret Anne Rolleston and Edward Lyulph Stanley, *The Reign of Queen Anne: A Phase in the Revolutionary Settlement of Great Britain With Portrait and Seven Maps and an Introduction by the Hon. E. Lyulph Stanley* (London: [1898] 1994).

²⁹ Whatley, *Bought and Sold for English Gold*, 29-30.

³⁰ Iain McLean, *What's Wrong with the British Constitution?* (Oxford: Oxford University Press, 2010), 52-3.

³¹ NRS, GD220/5/53/2, Correspondence of James, 1st Duke of Montrose: Tullibardine, later 1st Duke of Atholl. Hunting tower, London 1703 [indorsed 1706, but probably April 1703].

have once got us to name the successor ther business is done and ours undone.”³² They were not alone in their sentiments as there was staunch support in the Parliamentary session of 1703 for ending union negotiations. So much so that Queensberry stepped down as union negotiator in June 1703, however, he was still heavily involved in Scottish politics as commissioner to the Scottish Parliament and still wielded some political power.³³ One commenter in June 1703 claimed that “everybody is wonderfully plased with the disposition of affares in Scotland” referring to Queensberry stepping down and union negotiations ending.³⁴

The Scottish and English Parliaments had a very strained relationship in 1703 and into 1704, which strengthened anti-union sentiments. Much of the reason for the distrust between them, during that time, was based upon past precedents. For instance, Mr. Hodges, a friend to the Hamilton family, claimed that while thousands of poor were dying in the last famine because of a lack of bread, the English Parliament prohibited the selling of any grain to Scotland.³⁵ This was a popular reference of agitation for many in Scotland as Hugh Montgomerie, amongst several others, made a similar argument during the Ill Years. Hodges had no doubt that it was a deliberate act to hurt Scotland, and in response Scots should “commit ourselves and our affairs to the destruction of the English.” Just as important, Hodges argued that the Scottish Parliament should not agree to the Hanoverian Succession without first securing its own benefits.³⁶ The most recent, and perhaps more disturbing event for the Scottish Parliament included Scotland entering the War of the Spanish Succession through the approval of the Privy Council and

³² NRS, GD406/1/8020, [The duke of Hamilton], Holyroodhouse, to [his mother Anne, duchess of Hamilton], 3 Jul. 1704.

³³ NRS, GD406/1/5145, [Gavin Mason] to [the duke of Hamilton], 5 Jun. 1703.

³⁴ NRS, GD406/1/5138, [Gavin Mason] to the duke of Hamilton, 12 Jun. 1703.

³⁵ The English Parliament had in fact ordered that grain exports be stopped in 1699, but this was the result of their own grain scarcity, rather than a deliberate attempt to harm the Scottish people.

³⁶ NRS, GD406/1/5118, Mr. Hodges, London, to [the duke of Hamilton], 12 Jul. 1704.

without the approval of the Scottish estates, or the Scottish Parliament.³⁷ A move that irked the Scottish Parliament who made its agitation known in the next session of Parliament in 1703 with the development of the Act of Security and other measures to secure the rights of the Scottish Parliament.

The Act of Security was one such measure introduced in the Scottish Parliament to secure its rights. Early drafts of the Act of Security from June 1703, introduced by the Duke of Montrose (Atholl) with support from the Duke of Hamilton, stated that the Scottish Parliament had the right to meet 20 days after the queen's death to appoint a new successor, in large part as a response to the actions of the previous year when this failed to occur. Montrose justified this action through an agreement between the estates of Scotland from April 11, 1698 and the October 1696 Act for Security of the Kingdom.³⁸ Montrose and Hamilton's 1703 version of the Act of Security allowed Scotland, or rather the Scottish Parliament, to retain its ability to choose its own successor and allowed it to keep some of its bargaining power with the English union representatives, if union was desired. While this version of the act was somewhat threatening to Anne and the Royal Court because it implied that the Scottish Parliament would not necessarily follow English ideas in choosing its successor, it was much friendlier to the Royal Court when compared to other drafts and clauses added to the Act of Security that followed.

This included a draft introduced by Andrew Fletcher of Saltoun (Salton), also found in other drafts introduced to the Scottish Parliament, which demonstrated the extent that a majority in the Scottish Parliament were against the idea of union and the anti-English progression that

³⁷ Allan I. Macinnes, "Anglo-Scottish Union and the War of the Spanish Succession," in *The Primacy of Foreign Policy in British History, 1660-2000* (New York: Palgrave Macmillan, 2010), 54.

³⁸ NRS, GD112/43/24/2-3, State Papers, 1703, Overture for an act of security of the Kingdom; NRS, PA7/18/34, Supplementary Parliamentary Papers 1702-1703.

the Act of Security took as it advanced through the Scottish Parliament. In this draft, most of the power in the government permanently devolved to Scotland's Parliament after Anne's death. In particular, the queen or king would not have the power to declare war, make peace, or conclude a treaty without parliament's consent; no military force could be kept in war or peace without parliament's consent; and parliament would appoint offices and pensions previously considered only by the queen or king. Just as important, in this version of the Act of Security, Scotland would follow the English succession if those conditions were met, which meant the Act of Security was passed.³⁹ In comparison to the version of the Act of Security introduced by Montrose and Hamilton, this draft was very threatening to Anne, or any future monarch, who wanted peace between the two countries after her death, with its attempts to restrict and limit the powers of the future ruler. This only increased the tension between Anne and the English Parliament on one side and the Scottish Parliament on the other. But it kept the door open for union, if, for some reason, Anne and the English Parliament were willing to agree to these terms and pass the Act of Security.

Despite his role in introducing the first draft of the Act of Security to the Scottish Parliament, the Duke of Hamilton began to regret it by the summer of 1703.⁴⁰ What Hamilton had intended to be an act that merely gave Scotland its own power to choose its successor, had, by that summer, transitioned to the even more restrictive acts on the power of the next monarch that

³⁹ NRS, GD112/43/24/4, State Papers, 1703, Printed, Overture for an act for security of the Kingdom; see also NRS, PA7/18, Supplementary Parliamentary Papers 1702-1703, Act of Security, 34,76.

⁴⁰ NRS, GD406/1/11805, The duke of Hamilton, Holyroodhouse, to [his mother Anne, duchess of Hamilton], describing the debate in parliament over the acts of peace and war and security, 8 Jul. 1703; NRS, GD406/1/7981, [The duke of] H[amilton], Holyroodhouse, to [his mother Anne, duchess of Hamilton], 2 Jul. 1703; see also NRS, GD406/1/5152, [The duke of] H[amilton], Holyroodhouse, to [his mother Anne, duchess of Hamilton], 11 Sep. 1703.

followed Saltoun's example. Hamilton was distraught shortly after the Act of Security changed form and thought it allowed for a union, claiming that he "would sell my estate and neaver more be called a scots man."⁴¹ By the end of the 1703 Scottish Parliamentary session the measures of Saltoun's Act of Security gained support and after long debate, "we came to the vote whether we should joyne lord rothess act in relation to peace and war for this act of security... indeed they carried it by 26 votes."⁴²

While a majority in the Scottish Parliament saw the Act of Security and the Act Anent Peace and War, and along with it a refusal of supplying the war effort as beneficial to Scotland, unsurprisingly, many in the English Parliament and the Royal Court were less than pleased by these actions. Much of the English Parliament and Royal Court blamed the Duke of Hamilton for what had occurred in Scotland. Several people wrote to Hamilton advising him to stay away from London for the time being and it was thought that by refraining from naming a successor and introducing the Act of Security Hamilton was attempting to be named successor himself to the Scottish throne.⁴³ This idea was not entirely farfetched considering he was in the succession line for the Scottish throne. One report stated that the English were "perplexed" by what the Act of Security suggested and were "at some uncertainty how to carry about them."⁴⁴ An additional

⁴¹ NRS, GD406/1/11805, The duke of Hamilton, Holyroodhouse, to [his mother Anne, duchess of Hamilton], describing the debate in parliament over the acts of peace and war and security, 8 Jul. 1703.

⁴² NRS, GD406/1/11805, The duke of Hamilton, Holyroodhouse, to [his mother Anne, duchess of Hamilton], describing the debate in parliament over the acts of peace and war and security, 8 Jul. 1703.

⁴³ NRS, GD406/1/5192, [? Mr. Hodges], London, to [the duke of Hamilton], 31 Aug. 1703; NRS, GD406/1/5158, John Hamilton, Preston, to [the duke of Hamilton], 5 Sep. 1703.

⁴⁴ NRS, GD406/1/5192, [? Mr. Hodges], London, to [the duke of Hamilton], 31 Aug. 1703.

report stated that the English Parliament or ministry should just give Scots money to get them to agree.⁴⁵

What these reports made clear was that as things stood in the Autumn of 1703, Queen Anne would not approve the Act of Security. Rumors circulated that Anne commanded the commissioner to the Scottish Parliament (Queensberry) not to pass anything that would change the succession from Princess Sophia and the Hanoverian line that the English Parliament had already approved.⁴⁶ The rumors had some truth behind them because as late as September 1703, Anne still instructed the commissioner to the Scottish Parliament not to pass or even look over the Act of Security.⁴⁷

While the Scottish Parliament debated and attempted to pass through the Act of Security, the English Parliament was far more concerned with the effort in the ongoing War of the Spanish Succession. In November 1703, a few weeks prior to the Great Storm, the House of Commons addressed the queen and gave their praise over a strong alliance and providing more funds to the exchequer for the war effort. This last point was important because at the end of the Scottish Parliamentary session of 1703, the Act of Security became tied to passage of the cess, or the specie and more importantly the supplies and soldiers that the English military would receive as part of the war effort from Scotland. Without royal assent of the Act of Security, then no money or supplies went to the English war effort. While not necessarily a problem early in 1703 for the English war effort, since their losses were still relatively small and they could rely on their colonies and allies for soldiers, it could soon become problematic if the war carried on or the

⁴⁵ NRS, GD406/1/5192, [? Mr. Hodges], London, to [the duke of Hamilton], 31 Aug. 1703.

⁴⁶ NRS, GD406/1/5142, [Gavin Mason] to [the duke of Hamilton], 9 Jun. 1703.

⁴⁷ NRS, GD406/1/5153, letter from [James, duke of] H[amilton] to [] 10 Sep. 1703.

‘Grand Alliance’ suffered large defeats.⁴⁸ As such, the Anglo-Scottish Union was not a pressing topic. In fact, the only union that received mention was between political parties (Whig and Tory).⁴⁹ Prior to the Great Storm of November, the English Parliament had expressed little interest in even discussing a union with Scotland, or at least one that seemed to offer Scotland generous terms. Their main concern was the war effort and when it came to Scotland, the real concern was the succession, but not union. The events of the following weeks turned the tides between the Scottish Parliament and the English ministry, Parliament, and Court.

The Great Storm

As chapter two noted, paleoclimatic reconstructions demonstrate increased storminess and climatic aberrations during the Global Little Ice Age, which further affected much of the British Isles. The sea surface temperature changes demonstrated in figure 2.18 from chapter two created a persistently stronger thermal gradient between the latitudes of 50 to 61 to 65 °N, or between Cornwall and the Shetlands. Consequently, severe cyclonic windstorms, became more frequent during the Global Little Ice Age. Sommerville (2003) demonstrated that storminess in Shetland, Orkney, and for much of Scotland increased during the Global Little Ice Age. This was evident through an increase in the amount of sand found in soil samples dated from the seventeenth century as well as the documentary accounts.⁵⁰ In addition, there is evidence that not only did more erosion take place during the conventional Little Ice Age, but that it increased in

⁴⁸ Alan I. Macinnes, “Anglo-Scottish Union and the War of the Spanish Succession,” in eds., William Mulligan and Brendan Simms, *The Primacy of Foreign Policy in British History, 1660-2000: How Strategic Concerns Shaped Modern Britain* (London: Palgrave Macmillan UK, 2010), 51-2.

⁴⁹ NRS, RH14/547, Address of Commons of England to Queen 11 Nov. 1703.

⁵⁰ A. A. Sommerville, “Optically stimulated luminescence dating of large storm events in Northern Scotland,” *Quaternary Science Reviews* 22 (2003): 1085-92.

its severity during the extremes of the Global Little Ice Age.⁵¹ From 1550 to shortly after 1700, storms became more common overall below 60 °N.⁵² As Dennis Wheeler, H. H. Lamb, Christian Pfister, and their collaborators have catalogued, the end of the seventeenth and early eighteenth century saw even more severe gales in this area, one of which was the ‘Great Storm’ of 1703.⁵³

On November 26 and 27 the ‘Great Storm’ of 1703 brought powerful winds to much of Southern Britain, causing extensive damage. Much of what we know of the storm comes from Daniel Defoe, who published a collection of accounts of the storm in 1704. Defoe made it abundantly clear that this storm was exceptionally powerful, even claiming that the night of the great storm, the barometer reached the lowest level that he had ever seen.⁵⁴ One account called the storm “a perfect hurrican, the wind raging from every quarter,” and another called it “the most violent tempest the world ever saw.”⁵⁵ While the worst of the Great Storm was on November 26 and 27, the winds the few days on either side were “violent” as well in addition to heavy rains and hail that caused severe damage in many places. Had it not been for the “great

⁵¹ Frank Oldfield, “Terrestrial and aquatic ecosystem responses to late Holocene climate change recorded in the sediments of Lochan Uaine, Cairngorms, Scotland,” *Quaternary Science Reviews* 29 (2010): 1040–54; Tisdall et al., “Living with sand: A record of landscape change and storminess during the Bronze and Iron Ages Orkney, Scotland,” *Quaternary International Volumes* 308–309 (2013): 205–15.

⁵² Lamb, *Climate, History, and the Modern World*, 192.

⁵³ H. H. Lamb and Knud Frydendahl, *Historic Storms of the North Sea, British Isles, and Northwest Europe* (Cambridge and New York: Cambridge University Press, 2005), 59; Christian Pfister, Emmanuel Garnier, Maria-João Alcoforado, Dennis Wheeler, Jürg Luterbacher, Maria Fatima Nunes, and João Paulo Taborda “The Meteorological Framework and the Cultural Memory of Three Severe Winter-Storms in Early Eighteenth-Century Europe,” *Climatic Change* 101 (2010): 286; Dennis Wheeler, “The Great Storm of November 1703,” *Weather* 58 (2003): 419-27.

⁵⁴ Defoe, *The Storm*, 25.

⁵⁵ Defoe, *The Storm*, 70, 112, 119, 120, 123, 132. Although several other contemporary authors called it a hurricane as well, a hurricane as we would think of it today did not hit southern Britain. It was more like a very strong temperature gradient leading to the intense winds. These accounts demonstrate the damaging effects of the storm for the authors that witnessed it. See Pfister, “Cultural Memory of Three Severe-Winter Storms,” 289.

storm” that followed, Defoe argued that the preliminary events of November 24 and 25 would have been significant in itself.⁵⁶ On December 2, “the greatest and longest storm that ever the world saw” ended.⁵⁷

Much of what we know about the damages of the storm comes from periodicals and Defoe, who placed an advertisement in the English periodicals asking for accounts of the storm. The reports that Defoe gathered from various places in southern Britain, read much the same, with significant widespread damages found south of the river Trent in the Midlands.⁵⁸ On land, this mainly consisted of damaged or destroyed chimney stacks and church spires, roof tiles and lead sheeting or rolling up from buildings and littering streets, houses damaged and destroyed, stones being moved, windmills damaged and destroyed, crops destroyed, and animals dead.⁵⁹ In one of his more detailed summaries of the destruction in southern Britain, Defoe claimed that over 100 churches lost their lead sheet roofing, 7 steeples were completely blown down, over 400 hundred windmills were damaged or destroyed, and over 800 houses were completely blown down.⁶⁰

The winds were so strong that, in one account, William Derham thought it safer to stay indoors while his house was shaking and on the verge of collapse than to go outside and risk exposure to projectile-like debris.⁶¹ London, proved an enormous source for flying debris with over 2,000 chimneys blown over and shattered tiles littering the ground.⁶² One of the more vivid

⁵⁶ Defoe, *The Storm*, 25, 29.

⁵⁷ Defoe, *The Storm*, 41.

⁵⁸ Defoe, *The Storm*, 150; Pfister, “Cultural Memory of Three Severe-Winter Storms,” 287.

⁵⁹ Defoe, *The Storm*, 25, 32, 85, 90, 96.

⁶⁰ Defoe, *The Storm*, 155.

⁶¹ A Letter from the Reverend William Derham, F.R.S. Containing his Observations Concerning the Late Storm, in Defoe, *The Storm*, 32.

⁶² Defoe, *The Storm*, 74.

commentaries of the housing situation in southern Britain after the Great Storm claimed that “the houses looked like skeletons and an universal air of horror seem’d to sit on the countenances of the people; all business seem’d to be laid aside for the time, and people were generally intent upon getting help to repair their habitations.”⁶³

Tree damage was also extensive throughout southern Britain. In Kent over 17,000 large trees were damaged or destroyed, which Defoe posited that this was likely only a fifth of the damage there because that was how little he saw of the entire area.⁶⁴ Reports from London claimed that even trees of considerable thickness, including one example 3 yards across, were broken in half or blown over.⁶⁵ In addition, 25 parks in England each had over 1,000 trees blown over, New Forrest in Hampshire lost over 4,000 trees, and another 450 parks lost between 250-1,000 trees each.⁶⁶ All told, the total number of trees damaged was likely in the millions.⁶⁷

Low Wilcox Esq. went through the Queen’s land in southern and western England and reported considerable damage to the trees there (south side of River Trent, Middletown, St. James Park, Windsor, Southton, and much of present-day London). While not all of the wood was salvageable, the wood and wood products that were salvageable from the Queen’s land, close to £2,000 worth, went to the English Navy.⁶⁸ A 1711 account of timber had oak selling at £3 and 17 shilling per 56 feet of oak for general use, as much as £18 per 44 feet for use as beams,

⁶³ Defoe, *The Storm*, 81-82.

⁶⁴ Defoe, *The Storm*, 70.

⁶⁵ Defoe, *The Storm*, 81.

⁶⁶ Defoe, *The Storm*, 155.

⁶⁷ Martin Brayne argued that tree damaged was likely in the millions by comparing the 1703 storm with the 1987 storm that affected the same areas. See Brayne, *The Greatest Storm*, 125.

⁶⁸ The National Archives, Kew, LR4/1/55, 56, 58, The account of Low Wilcox Esq for Wind falls in the Great Storm not fitt for the Navy by Warrt, c. 1704.

and around £6 and 11 shilling for oak paneling at 4 inches thick.⁶⁹ It took approximately 2,000 trees to build one English warship in the eighteenth century.⁷⁰ If as Defoe claimed the loss of trees was in the millions, or anywhere close to this number, the English navy lost a significant portion of potential lumber supplies at a time when it needed to rebuild during the height of the war. This would explain why Wilcox highlighted the significance of this wood going to the navy, with a potential shortage of wood from the storm over the long term.

Along coasts, the situation was no better. The storm's strong winds increased the storm surge and made high tide worse in many places, including near rivers, pushing them six to eight feet higher than normal in places, which broke sea walls and caused severe flooding. Damages were extensive for houses and businesses near the shore and drowned crops, sheep, and cattle as well.⁷¹ For example, in Gloucestershire and Somersetshire storm surge damages associated with the intense winds blew the River Severn eight feet higher than it had ever been seen.⁷² At the wharves and warehouses of Bristol, high tides destroyed thousands of hogshead of sugar and tobacco from the Americas.

In terms of ships and shipping, the damage was "incredible." Many ships were pushed out to sea, while others, especially those on rivers, became grounded after they broke loose from their dockings.⁷³ While some ships were 'fortunate' enough to be stuck onshore rather than sunk or otherwise destroyed, English newspapers reported that many of these ships were stuck on

⁶⁹ William Sutherland, *The Ship-Builders Assistant: or, Some Essays Towards Compleating the Art of Marine Architecture* (London: Printed for A. Bell at the Cross-keys and Bible, and R. Smith under the Royal Exchange, Cornhill, 1711), 17-20.

⁷⁰ Reference from the Greenwich Maritime Museum, see <https://www.rmg.co.uk/discover/explore/shipbuilding-800-1800>

⁷¹ Defoe *The Storm*, 38-9.

⁷² Defoe, *The Storm*, 92, 171-3, 176.

⁷³ Defoe, *The Storm*, 37.

shore for several months after the Great Storm. So, while they may have escaped the initial damage, it still left them out of service and placed many English seafaring captains in an awkward spot for some time thereafter. A number of these ships were in the royal navy or otherwise working for the government. The number of large sailing ships lost because of the storm was over 150.⁷⁴ While making observations along several spots on the River Thames, Defoe counted over 1,000 small craft destroyed and over 700 damaged, which did not begin to include the numerous ships damaged and destroyed along the coasts and rivers in the rest of southern England, many of these belonging to merchants and other individuals, including those headed for the West Indies.⁷⁵ In addition to the losses in southern Britain and off the coast, Defoe counted at least 43 ships lost at sea, which included both merchant and military.⁷⁶ Because the strong winds prior to the Great Storm kept many ships in port, this caused greater damages to ships, but was probably much better than it could have been where the loss of human life was concerned.⁷⁷

Although most of the reports of the monetary costs of damages were in general terms, some specific examples Defoe provided were at Bristol (the center of the West Indies trade), which suffered damages near £100,000; Gloucester suffered over £17,000, not including the 15,000 sheep that drowned; Norfolk ship losses were at least £7,000; there were over £200,000 of losses inland along the River Severn, and in Ely damages valued at over £20,000.⁷⁸ The exact cost of the storm is difficult to determine but Defoe provided some help by comparing it to the Great Fire of London. Defoe argued that the fire in London cost £4,000,000 worth of damage,

⁷⁴ Defoe, *The Storm*, 214.

⁷⁵ Defoe, *The Storm*, 25, 195, 205-7.

⁷⁶ Defoe, *The Storm* 62, 167.

⁷⁷ Defoe, *The Storm*, 63.

⁷⁸ Defoe, *The Storm*, 142-3, 157, 175, 208-9.

despite its confinement to a small space. In comparison, the Great Storm impacted all of southern Britain and Defoe thought that it would cost much more to remedy than the damage of the fire of London.⁷⁹ In 2018, that £4,000,000 worth of damage would be between approximately £665,000,000,000 and £102,100,000,000 in total wealth lost or economic cost, a staggering figure.⁸⁰ Defoe also contextualized the event in terms of recent major storms, one he called “the great wind” of February 1661, along with storms in 1698 and 1702.⁸¹ Defoe posited that none of these came close to the severity and damage of the most recent storm, citing the damage of the 1661 storm at around £2,000,000 and arguing that this storm was much less intense than the one in 1703.⁸²

While the financial toll of the Great Storm was significant, just as important in affecting Anglo-Scottish relations were the 8,000 people who died at sea and direct losses to the Royal Navy.⁸³ Pfister has argued that between 5 and 20% of the Royal Navy’s mariners were lost that night, out of the approximately 40,000 total, and the difficulty in replacing so many men of skill the lost sailors, both in the navy and merchant marine, was a challenge that transcended financial costs.⁸⁴ Moreover, the Royal Navy suffered extensive physical damage with ships losing masts, sails, rigging, and others colliding with one another, in addition to damages at the ports of Plymouth, Minehead, and Swansea.⁸⁵

⁷⁹ Defoe, *The Storm*, 156; Jankovic argued that the damage of the storm amounted to £1,000,000-4,000,000 see Jankovic, *Reading the Skies*, 61.

⁸⁰ For a more detailed analysis see <https://www.measuringworth.com/ukcompare/relativevalue.php>.

⁸¹ Defoe, *The Storm*, 42.

⁸² Defoe, *The Storm*, 57; An account of the “Great Wind” can be found in the dairy of Samuel Pepys.

⁸³ Defoe, *The Storm*, 156; some reports even listed this as high as 15,000. See Pfister, “Cultural Memory of Three Severe-Winter Storms,” 288.

⁸⁴ Pfister, “Cultural Memory of Three Severe-Winter Storms,” 300.

⁸⁵ Defoe, *The Storm*, 123, 140, 168, 209.

From accounts of the storm in 1703 and 1704 the Royal navy lost at least 14 warships with many others suffering damages.⁸⁶ This included four fourth-rate ships, four third-rate ships, one second rate ship, two bomb vessels, one store ship, one advice boat, and one ship that was not classed.⁸⁷ Mile Norcliffe, a sailor, claimed that three hospital ships sunk as well, killing all onboard, though Defoe was skeptical of this account.⁸⁸ The navy also lost a considerable number of smaller vessels, but Defoe argued that it was impossible to get an accurate number of these losses. One account from Paris stated that losses in England reached 30,000 sailors and “300 sail of ships,” which, though exaggerated, could play a significant role in international relations if it represented the perception of English wartime vulnerability after the storm.⁸⁹

The military vulnerability of England was not lost on commentators at the time. In addition to the storm and the damage associated with it, news from the battlefield was also poor. The Grand Alliance’s campaign in Spain had been mismanaged, ultimately failing to secure the key Spanish port of Cádiz in 1702.⁹⁰ On the rest of the Continent, the war had begun to go against England and its allies despite some initial successes in securing the Dutch border. For the Grand Alliance, 1703 saw major defeats along the Rhine and Danube at the Battles of Ekeren, Friedlingen, Höchstädt, and Speyerbach as well as the fall of Breisach, Landau, Augsburg (in December), and Passau (in early 1704), all of which left Austria open to attack.⁹¹ Just days after

⁸⁶ The total number of English warships numbered between 120-160 (ship of the line first-fourth rate). See *A New List of All the Ships and Vessels of Her Majesties Royal Navy; When, Where, and by Whom Built, and Rebuilt. With Their Burthen and Number of Men and Guns* (London, 1710); Brian Lavery, *The Ship of the Line Volume I* (London: Conway Maritime Press, [1983] 1995).

⁸⁷ Defoe, *The Storm*, 210, 222, 254.

⁸⁸ Defoe, *The Storm*, 194-5.

⁸⁹ Defoe, *The Storm*, 93.

⁹⁰ Kamen, *The First Peninsular War*, 52-54.

⁹¹ John A. Lynn, *The Wars of Louis XIV 1667–1714* (London: Longman, 1999), 276-284.

the Great Storm, reports described a “great defeat of the germains by the French,” perhaps the fall of Augsburg. Either way, England and its allies were vulnerable on the Continent as the author of this account claimed that these defeats “can not but be thought a very mortifying blow to the confederacy in general, as being prejudicial to the common liberties of Europe.” At least from this perspective, the English war effort was in serious jeopardy, both by land and by sea.⁹²

What was to the disadvantage of the English was to the advantage of many in Scotland, especially those who opposed a union, or who wanted much better terms from the English representatives in union negotiations. A correspondent to the Laird of Grubet, described how Scotland’s interests were different from all its neighbors, that any defeat to its neighbors (i.e. England) was not necessarily a negative. More importantly, the author connected the damages of the Great Storm to the benefit of Scotland writing that the “judgement like hurricane that made such a general desolation among the shipping, buildings, and plantations of England beside the loss of several thousands of lives (I mean of seaman) and some hundreds of land people.... It is guessed [?] that six millions will not repair the loss.” The author went on to write that “the parliament of England is sensibly touched with” the damage of the Great Storm.⁹³

The “Scots Plot”

Meanwhile, reports trickled in of French money and invasion activities in Scotland.⁹⁴ The “Scots Plot” or “Scotts affair” was a rumored attempt to restore the Stuart line to the throne of Scotland and England by an invasion of Jacobites and their forces, which included French assistance as well. The Jacobites, derived from the Latin *Jacobus* for James, were the followers

⁹² NRS, GD205/34/4/2/1-28, Bennet of Grubet Papers; 1696-1729, Letter for laird of Grubet younger, 9 Dec. 1703.

⁹³ NRS, GD205/34/4/2/1-28, Bennet of Grubet Papers; 1696-1729, Letter for laird of Grubet younger, 9 Dec. 1703.

⁹⁴ NRS, GD205/34/4/2/1-28, Bennet of Grubet Papers; 1696-1729, Roderick Mackenzie to the laird of Grubet (younger), 25 Nov. 1703.

of the Catholic James II (and later his son, James Francis Edward Stuart) and the Stuart line to the thrones of England and Scotland. After James II's defeat to William III, he fled to France where Louis XIV recognized him as rightful heir to the Scottish and English thrones. Subsequent attempts by the Jacobites to restore James and later his son to the throne, usually with the aid of France became known as the Jacobite rebellions. Even the mention of a potential invasion brought with it sound reason to be alarmed. Even though the 'Scots Plot' was founded on little more than rumors, the fear that this prospect introduced, in combination with the damages from the Great Storm, became especially important to subsequent union negotiations and evaluations of the balance of power between Scotland and England. To many, including those in the English ministry, Parliament, and Royal Court, it demonstrated a pressing need for England to 'secure' its northern border against sedition or invasion.⁹⁵

News quickly spread implicating the Duke of Queensberry and the Duke of Hamilton in this rumored Scots Plot and it became a smear campaign for both parties. In early December, rumors in London, as well as in Scotland, circulated of Queensberry's alleged role in planning the Jacobite invasion attempts. The rumors related to Queensberry, stated that he

made use of the greatest of villains Symon Fraser to go to the hilands with his pass and protection to entrap some of the clans, and that the said Symon having returned to London is gone over to St Germain's by the Earl of Nottingham's pass procured by the Duke of Queensberry... now when it is discovered he [Queensberry] has nothing to say for himself but he did it for her Majesties service to make discoveries who were in plotts against the government.⁹⁶

⁹⁵ The English House of Lords denoted this 22 Mar. 1704. See George Lockhart of Carnwath and Daniel Szechi, *Scotland's Ruine* (Aberdeen: ASLS, 1995 [1714]), 56-8.

⁹⁶ NRS, GD220/5/53/3, Correspondence of James, 1st Duke of Montrose: Tullibardine, later 1st Duke of Atholl. Hunting tower, London 9 Dec. 1703; NRS, GD406/1/7839, [The duke of] H[amilton], Kinneil, to [his mother Anne, duchess of Hamilton], 14 Dec. 1703.

When the queen and the English Parliament discovered Queensberry with documents related to the Scots Pot, the Duke of Montrose was unconvinced that Queensberry had become involved in the plot to expose it and believed that the Queen had Queensberry caught helping the Jacobites.

Yet, Queensberry told a different tale. He blamed the Scots Plot on Atholl and the Duke of Hamilton, claiming that he received documents detailing the Scots Plot from an associate and the plotters contacted this associate about the plot.⁹⁷ Queensberry claimed that he had letters in his possession, wrongly delivered to him, incriminating Atholl and Hamilton and their alleged role in the affair, and he provided many details of the plot and plotters.⁹⁸ He claimed he was going to take this letter to the Queen and wanted to know if David Baillie, related to the Jerviswood Baillies who were involved in the Rye house plot to execute Charles II, would testify to corroborate Queensberry's account.⁹⁹ The only problem for Queensberry was that Baillie wrote to the Duke of Hamilton about this and repeatedly told Queensberry that he was unaware of the whole affair. In fact, Baillie claimed that all the accused were innocent.¹⁰⁰ In effect, this gave the Duke of Hamilton even more leverage over Queensberry and created an irreparable rift between Queensberry, Montrose, and Hamilton. Politically, it helped make Hamilton a stronger figure, at least amongst his own party and aided in the temporary removal of Queensberry as Lord High Commissioner to the Scottish Parliament, however he soon proved his value to Anne in blocking

⁹⁷ NRS, GD406/1/11822, Extract letters of the duke of Queensberry to Queen Anne, protesting his innocence of any conspiracy with France. With copy address of the House of Lords to the Queen in relation to the Plot, and the Queen's answer to the address 1703, Feb. 1704.

⁹⁸ NRS, GD220/5/64, James, 1st Duke of Montrose: 1st Earl of Glasgow. Edinburgh, 11 Dec. 1703.

⁹⁹ For an overview of the entire episode involving Baillie see Thomas Bayly Howell, *A Complete Collection of State Trials and Proceedings for High Treason and Other Crimes and Misdemeanors from the Earliest Period to the Year 1783 Vol. XIV* (London, 1816), 1036-1066.

¹⁰⁰ NRS, GD26/8/141, Letters regarding attempts by the Duke of Queensberry and the Marquis of Annandale to get David Baillie to reveal a Jacobite plot in which the Dukes of Atholl and Hamilton were supposed to be concerned, 22 Dec. 1703.

many of Tweeddale's actions (below) and was reappointed in 1706 to help negotiate the Union through the Scottish Parliament.

The entire affair also reemphasized the now weakened English position in the War of the Spanish Succession because of the Great Storm, which now had to fear invasion along its northern border. James, the duke of Montrose, wrote that the whole situation caused quite a scare in London, and that there were many whisperings about the Scots Plot.¹⁰¹ From the English perspective, the whole affair now made Scotland into a major geopolitical problem. In direct response to the Scots Plot, the Privy Council met on December 23, 1703 and, under instruction from Anne, sent orders to arrest those responsible for the attempted plot, especially Simon Fraser and his associates.¹⁰² By the end of December, the English Parliament, Anne, the Royal Court, and ministry had expressed a renewed concern over the weakness of the English northern border.¹⁰³

Representative of how the damages of the Great Storm and the threat of the Scots Plot together reinforced this new urgency is best demonstrated through the events of October 1704, when rumors spread of a large French fleet off the northeastern coast of Scotland and the landing of men in Aberdeen. While 'foreign' ships frequently sailed in these waters to fish and trade, because it was during the War of the Spanish Succession, any large French fleet, or any large unknown fleet was a suspected invasion force or military threat. In this case, it turned out to be a

¹⁰¹ NRS, GD220/5/53/3, Correspondence of James, 1st Duke of Montrose: Tullibardine, later 1st Duke of Atholl. Hunting tower, London 9 Dec. 1703; NRS, GD406/1/7839, [The duke of] H[amilton], Kinneil, to [his mother Anne, duchess of Hamilton], 14 Dec. 1703.

¹⁰² NRS, GD305/1/161/79, Minutes of a Privy Council held 23 Dec. 1703; NRS, GD406/1/6937, [Katherine, duchess of Atholl], Dunkeld, to [her brother the duke of Hamilton], 23 Dec. 1703; The previous documents stated that they also arrested Lieutenant Campbell of Glendemell and Mr. Keith Lutwhernsson for corresponding with Fraiser.

¹⁰³ NRS, GD406/1/7292, George, earl of Orkney, London, to his brother [the duke of Hamilton], 29 Dec. 1703.

large Russian fishing fleet, but the perceived threat was real enough as it called for an “extraordinary council” to meet and discuss the situation.¹⁰⁴

A letter to James, the Duke of Montrose, just a few days after the Great Storm, summed up the English perspective well when the author argued that because of the Great Storm and the Scots Plot, the union for England now had “two difficulties. The one is that it seems the English have some trash to put upon our scots ministry, which will not bear the light. Duke of Queensbury (as I have said) is entrusted with the secret and whoever joins with him must put their hand to the oar and allow him to manage the rudder.” Put more simply, the first “difficulty” meant that those in England supporting succession and union would have to rely on Queensberry to complete the negotiations, despite their reservations to trust Queensberry, which was only made worse by the Scots Plot, or the “trash” the author referred to, suggesting that the plot was farcical. The second difficulty was “greater,” according to the author, in that English union negotiators were not willing to offer terms that the Scottish Parliament thought acceptable for a union. Nevertheless, the author argued that the Scots Plot was advantageous for both the pro and anti-union sides in Scotland, pointing out that although it really was not much of a plot at all, rumors spread through London and it “is very much incredibly useful in influencing our affairs.”¹⁰⁵

The perceived vulnerability of England and the benefit this might pose toward Scotland’s anti and pro-union sides were not lost on commentators of the time. After the storm, an anonymous account from London wrote to the Duke of Montrose that Scotland had caught the

¹⁰⁴ NRS, GD406/1/6968, [The duke of] H[amilton], Kinneil, to his mother Anne, duchess of Hamilton, 12 Oct. 1704.

¹⁰⁵ NRS, GD220/5/64A, Correspondence of James, 1st Duke of Montrose: Anonymous letter to Montrose, London 14 Dec. 1703.

English “in a pinch.” Specifically, “some accidents have intervened some of which have an immediate aspect to our affairs and some have a contingencie with them but both may probably have a considerable influence upon our affairs.” The author here is making a direct reference to the effect of the Great Storm on the situation of the English as it related to Scotland (the “contingencie” is the Scots Plot).¹⁰⁶ One pamphlet of the Great Storm described the “numerous spoils to so many at sea and land? [sic]requiring much time and treasure to heal our wounds, to make up our private and publick losses; which at this juncture of war when we must open out veins, to give life and strength to others, must need be a very formidable blow to the whole kingdom.”¹⁰⁷ This pamphlet reiterated the weakened position of England because of the Great Storm, especially so because of the ongoing war. Defoe added his own perspective regarding how the storm benefited Scotland’s position and weakened England with a satirical poetic essay of the Great Storm. His *Essay on the Late Storm* explicitly mentioned the damages sustained by the Royal Navy during the storm and just as important, Defoe explicitly discussed the Scots Plot and the danger that it now posed to England, writing,

A plot in Scotland, Hatched in France,
 And Liberty the old Pretence.
 Prelatick power with Popish join,
 The Queen’s Just Government to undermine;
 This is enough to wake the dead...
 Then wake and warn us now the storms are past,
 Lest Heaven return with a severer Blast.
 Wake and inform Mankind
 Of Storms that still remain behind...
 Tell ‘em while secret Discontents appear,
 There’ll ne’er be *Peace and Union* here...¹⁰⁸

¹⁰⁶ NRS, GD220/5/64A, Correspondence of James, 1st Duke of Montrose: Anonymous letter to Montrose, London 14 Dec. 1703.

¹⁰⁷ *The Terrible Stormy Wind and Tempest November 27 1703 Consider’d, Improved, and Collected to be had in Everlasting Remembrance* (London: W. Freeman, 1705), 10.

¹⁰⁸ Daniel Defoe, *An Elegy on the Author of the True-Born-English-Man with an Essay on the Late Storm* (London, 1704), 53-4.

The work ended with Defoe claiming that it was time to get ready to deal with the problems in Scotland; invasion, succession, and union.¹⁰⁹

In the same letter from the previous paragraph, the anonymous author provided a concise and pointed summary of the new political dynamics between the Scottish and English Parliaments (and English ministry) writing that

I told you above that there are somethings which have an immediate aspect to our affairs so there are other things which though they have but a contingency with our affairs yet will have a considerable influence upon them. Such as the difficulties which this nation [England] is brought into by the unhappy issue of the last yeares campaign, and yet more by the effects of the late dreadful storm which hath destroyed so many ships of warr and so many thousand seamen besides a vast number of merchant ships with their crews, and a very considerable deal of inland damage above 150,000 pound at Bristol alone in merchandize. All these things I say does pinch and difficult this nation [England], the influence of which upon parliamentary and national concerns you can easily judge of.¹¹⁰

From this perspective, all the contingencies at the end of 1703, environmental, military, and geopolitical, came together to Scotland's advantage. The Great Storm was not the only contingency that had an influence on changing the tenor of the relationship between Scotland and England, but it was a crucial factor that brought England to the negotiating table in 1704 and created an increasingly urgent need to complete a union from the English perspective.

1704: The English Change Tack

After the Great Storm, there was a notable shift in the rhetoric of the English Parliament, which sounded much more willing to negotiate union. By March 1704, the House of Lords altered their negative or indifferent stance towards union from the previous November and began supporting union with Scotland.¹¹¹ This by itself suggests that events such as the Great Storm,

¹⁰⁹ Defoe, *An Essay on the Late Storm*, 53-56.

¹¹⁰ NRS, GD220/5/64A, Correspondence of James, 1st Duke of Montrose: Anonymous letter to Montrose, London 14 Dec. 1703.

¹¹¹ NRS, GD406/1/5199, The earl of Home, Hirsell, to [the duke of Hamilton], 29 Mar. 1704.

Scots Plot, and poor military results on the Continent had an important influence in the politics of union. The House of Commons was split by party between Whig and Tory, which caused much disagreement as each side tried to undo what the other accomplished. This caused “great preplaexity on how to deal with the scots affair” and Scotland’s Act of Security. Despite their differences, in April 1704, both houses of the English Parliament came together in support of union.¹¹² English Commissioners for union negotiations were soon named and the Scottish Parliament would soon meet in May, in attempt to settle the succession and union.¹¹³ With the English Parliament now officially supportive of union, what mattered now was what happened in the Scottish Parliamentary session of 1704.

Although Queen Anne now had explicit support from the English Parliament in the wake of the Great Storm, she and the Royal Court tried to take matters into their own hands regarding the Union and the next successor to the throne. To help expedite and smooth out the process for union they appointed the next union commissioners and Scottish Parliament commissioners purely on the basis of those who agreed to support the succession through the Hanoverians, and the policies of Anne.¹¹⁴ Charles, earl of Selkirk attended the meeting when the Scottish union negotiators were chosen later that year and stated that he had as little to do with their choosing as if he had been at home and not right there in the meeting.¹¹⁵ Because of the Great Storm and the associated problems it brought, 1704 saw a newfound urgency to resolve the succession and

¹¹² NRS, GD205/34/4/2/1-28, Bennet of Grubet Papers; 1696-1729, for laird of Grubet younger 6 Apr. 1704.

¹¹³ NRS, GD205/34/4/2/1-28, Bennet of Grubet Papers; 1696-1729, for laird of Grubet younger Mar. 1704, 12 Apr. 1704.

¹¹⁴ NRS, GD406/1/7989, [The duke of] H[amilton], Hollyroodhouse, to his mother Anne, duchess of Hamilton, 31 May 1704; NRS, GD406/1/7238, [Charles, earl of Selkirk], London, to his mother Anne, duchess of Hamilton, 14-17 Oct. 1704.

¹¹⁵ NRS, GD406/1/7238, [Charles, earl of Selkirk], London, to his mother Anne, duchess of Hamilton, 14-17 Oct. 1704.

union from the perspective of Queen Anne, the Royal Court, the English Parliament, and even those in the Scottish Parliament that desired union.

Despite not being the lead union commissioner of the Scottish Parliament, Queensberry was still an asset to the royal court by reporting on the affairs of Scotland.¹¹⁶ Yet, because of the Scots Plot and the failure to complete the succession, he was losing their trust and they were becoming more frustrated with him. In the Duke of Montrose's correspondence, we see a pointed summary of the opinion of the English court and ministry, claiming that they were "extremely dissatisfied[?]" between two things. The one is that Duke of Queensberry [sic] seems not able to do their business, and therefore must be laid aside" in efforts to complete the union. "The other is that he hath been intrusted with their secret, and hath perhaps undertaken more deeplie than any body else will doe. And therefore cannot be laid aside."¹¹⁷

Because of Queensberry's alleged role in the Scots Plot, his perceived allegiance to the English Court, and his presiding over the Scottish Parliament, there was a growing concern amongst members of the Scottish Parliament over their next meeting in 1704. The Duke of Atholl thought that if Queensberry was commissioner to the Scottish Parliament, no good would come of the session, claiming that Queensberry had neither the Queen's interest, from rumors of his role in Scots Plot, or Scotland's in mind. He was afraid that Queensberry would pass through the English choice for the succession, or heir, of the Scottish throne without considering Scotland and what it might want out of such an agreement. Ultimately, Atholl claimed that he did not care who ran the Scottish Parliament, but he wanted "to gett knaves out of the government [like

¹¹⁶ NRS, GD124/15/214/6, Letters to the Earl of Mar from the Duke of Queensberry and copies of Mar's letters to Queensberry, 18 Jul. 1704.

¹¹⁷ NRS, GD220/5/64A, Correspondence of James, 1st Duke of Montrose: Anonymous letter to Montrose, London 14 Dec. 1703.

Queensberry] and honest men in.”¹¹⁸ There was much dissent about Queensberry’s union negotiations in 1702 and 1703, and several members of the Scottish Parliament who were supportive of the idea of a union were nonetheless against Queensberry leading the Scottish Parliament and union negotiations.¹¹⁹ The Duke of Hamilton was never one to shy away from expressing his feelings on Queensberry and called him a tool of the English and “the most criminall of Scotemen.”¹²⁰

While Queensberry occupied the attention of some, the primary concern for the Scottish Parliament came over the settling of the succession, the Union, and the Act of Security. Toward the end of the parliamentary session of 1703, the Act of Security became tied to the passage of the cess, or the money and supplies that England would receive in the war effort. If the act was not approved, then no money or supplies would be sent to England. While it was not initially a terrible problem, since the English war effort did not sour until the end of 1703, this in some ways held the Queen hostage after the Great Storm, because of the new need for sailors and supplies. In 1704, the cess and the Act of Security would be hotly debated in the Scottish Parliament.¹²¹ If passed, the Queen would receive much needed funding and supplies for the war effort, but this also meant that the Act of Security, in whatever form it carried through the Scottish Parliament, would have to be approved as well. Yet, this could also be a step towards nominating commissioners or Scottish representatives to negotiate union because drafts of the

¹¹⁸ NRS, GD406/1/7044, [The duke of Atholl], London, to [his brother-in-law the duke of Hamilton], 4 Mar 1703/1704.

¹¹⁹ NRS, GD220/5/795, correspondence of James, 1st Duke of Montrose, and Mungo, Jan.-Mar. 1704.

¹²⁰ NRS, GD406/1/5031, [The duke of] H[amilton], Hollyrood, to [his mother, Anne, duchess of Hamilton], 17 Jul. 1704; NRS, GD406/1/5285, The duke of Hamilton, Scorton, to his wife Elizabeth, duchess of Hamilton 27 Mar. 1705.

¹²¹ NRS, GD205/34/4/2/1-28, Bennet of Grubet Papers; 1696-1729, 14 Jan. 1704.

Act of Security stated that if agreed to then the Scottish Parliament would select union commissioners and would begin union negotiations.¹²²

Shortly before the meeting of the Scottish Parliament that May, the Marquis of Tweeddale was appointed commissioner of the Scottish Parliament, and thus the union proceedings. Both sides supported this move. The Scottish Parliament supported him simply because he was not Queensberry, and although he supported the English succession, it was thought that he would “act or engage in nothing but what is for the interest of Scotland.”¹²³ The Duke of Atholl suggested this, perhaps, because Tweeddale was a member of the Company of Scotland, which had attempted to set up a trading company, for what it claimed was in the best interests of Scotland.¹²⁴ In addition, Tweeddale also had the favor of Anne and the Royal Court because he supported the English choice for succession.

If there was any doubt about the purpose of this session of the Scottish Parliament or Tweeddale’s appointment, Anne removed it with her letter to Tweeddale on June 21, 1704, writing that “I am desiring to take this opportunity of repeating to you, that the settling of the succession of the crown of Scotland in the Protestant line will be a very acceptable service to me, and being very well satisfied of your conduct hitherto in that matter, I make no doubt but you will continue your best and carrying the completing it.” Later, Anne reiterated how important it was to complete the settlement of the succession and suggested that Tweeddale could use money to make the order of succession happen.¹²⁵ Below is an excerpt of some of the most revealing

¹²² NRS, GD406/1/5040, Lord Rosse, Edinburgh, to Lord Whartone, 26 Jul. 1704.

¹²³ NRS, GD406/1/7048, [The duke of Atholl], London, to [his brother-in-law the duke of Hamilton], 11 Apr. 1704.

¹²⁴ Whatley also claimed that party politics also were also at play here, see Whatley, *Scots and the Union*, 204.

¹²⁵ NLS, MSS 7102, Letter 17, c. 1704.

instructions to Tweeddale from Anne showing what he was supposed to accomplish during the next session of the Scottish Parliament in 1704.¹²⁶

Anne started out emphasizing the important of the succession with the first and second articles.

1—you are to consent to such laws either new ones or correctory as shall be proposed and concluded in parliament, for the further security of the Protestant reformed religion, the government ecclesiastical and Civil as by laws established for the security of the crown and its rightful prerogatives, the liberties and propertys of the people and for suppression and punishment of vice and immorality

2—you are to use all possible endeavors to have the succession of the crown settled failing heirs of our body, on Princess Sophia of Hannover, and the heirs of her bodie and for effecting of this, you are to lett such of the members of parliament as you can trust know that we will have no misunderstanding betwixt us and the parliament concerning limitations.¹²⁷

Securing the succession in Scotland along the lines that the English Parliament and royal court proposed, being Protestant and following Princess Sophia of Hanover and her heirs, was of the utmost importance. As the end of the second article stated, for Anne, there was to be no middle ground on that matter, the Scottish Parliament was going to accept this.

The next few articles dealt with the more recent events effecting England and Scotland, including the Scots Plot and funding for the War of the Spanish Succession.

3—you are to consent to what acts should be concluded by the parliament for the security of our authority and of our subjects against and foreign invasion and for the prevention and suppression of insurrection and rebellions.

4—you are to procure a speedy supplie for maintaining the established forces, for the nations safety and for preventing disorders in case the soldier should not be timely paid as also for defence of the coasts against privateers and piracies

¹²⁶ NLS, MSS 7102, Letter 18, c. 1704.

¹²⁷ NLS, MSS 7102, Letter 18, c. 1704.

5—you are to allow our parliament to take the whole matter of the Plot under their consideration and to make what enquiry thereinto they shall think necessary for supporting our government and quieting the minds of our people.¹²⁸

As these articles stated, determining the danger of the Scots Plot was to be a priority for Tweeddale and he was to rely upon the Scottish Parliament for help in that matter. The logic being that a majority of the Scottish Parliament was against an overthrow of the government, even if it had reservations about who would succeed Anne. Securing funding was also a priority for Tweeddale. From this, we can see the effect that the poor results on the Continent and the damages of the Great Storm had on the outlook of the English war effort. Obtaining Scottish support in supplying the troops of England, and the Grand Alliance was now a priority, where it had not been so the previous year.

The final articles related more to the outlook and general business of Scotland.

6—you are to consent to such alterations in the book of rates as our parliament shall propose which may tend to advance the trade of the nation, without diminution of our rights and revenues
13—you are to give our assent to the acts for encouraging of trade and for the improvement of manufactories and fishing and for the more effectual hindering the export of money and regulating the coin and for a commission for visitation of schools and colleges and for revising the laws.¹²⁹

Here we see efforts to improve the trade and economy of Scotland, albeit through the eyes of Anne and her ministry over what would be most advantageous for Scotland. Tweeddale was to approve any act that dealt with ‘improvement.’ As mentioned in earlier chapters, fishing, and efforts to improve it had an immense importance, but there is also a reference to the recent state of the Scottish economy. By writing that Tweeddale was to accept measures to hinder the export of money, Anne referenced the problems Scotland faced with shortages of coin and specie, much

¹²⁸ NLS, MSS 7102, Letter 18, c. 1704.

¹²⁹ It was signed “give at our court at Windsor Castle the 21st day of June 1704 and of our reign the 3rd year. --- AR.” NLS, MSS 7102, Letter 18, c. 1704.

of which had been lost in exports, like grain during the Ill Years of the 1690s, amongst other things, and the problems from the failed colonization of Darien.

In one final point, Anne wrote that if the succession could not be settled then Tweeddale should allow for appointments of those helpful to the English cause who would ease the succession and union along, but he was also to add in a clause that when union happened between Scotland and England, everything, especially these appointments, would be null and void.¹³⁰ In this case, Anne let Tweeddale place into power anyone who would help their cause, but in seeing the problems that this might create for the future, Anne stipulated that those appointments would later be voided. Through these letters and her actions, clearly Anne (as well as the Royal Court, the English Parliament, and ministry) saw a real sense of urgency to get the succession and then in turn the union sorted out in the Scottish Parliament. This was not lost on observers during the 1704 session of the Scottish Parliament, as one Scottish contemporary claimed that the Queen would employ no one unless they agreed to supporting the English succession and supported union. This switch occurred because England was now unsecure and weakened, the author claimed, referring to the perceived weakened northern border after the Great Storm and 'Scots Plot.'¹³¹

Hostile Scotland

For much of the first half of 1704, while the English crown, ministry, and Parliament now saw an urgent reason to settle the succession and the Union, the members of the Scottish Parliament, remained divided over the succession, the Act of Security, and a potential treaty with England. For the earl of Home, Scotland should not accept the succession and do everything it

¹³⁰ NLS, MSS 7102, Letter 19, c. 1704.

¹³¹ NRS, GD406/1/5210, [], Holyroodhouse, to [], 4 Jun. 1704.

could to remove those “who designes to make us slaves to the English nation.”¹³² In turn, he would do what he thought was best for Scotland, although he failed to state what that was.¹³³

During the 1704 parliamentary session, we see the back and forth between members of the Scottish Parliament over succession and a treaty with England. Some within the Scottish Parliament argued that if they did not name a successor it was an easy way for a “popish plot” to occur, or to let someone who was not a Protestant control the throne. In addition, there were still those who saw problems with the Act of Security leading to a union.¹³⁴ Others thought Scotland ought to receive sufficient compensation for agreeing to the Hanoverian succession and a Mr. Hodges, a friend of the Duke of Hamilton, called it a “foolish bargain” to agree to succession and not receive anything in return.¹³⁵ The Duke of Hamilton, who was usually critical of the English, argued that without a treaty of trade, Scotland would suffer more injuries at the hands of the English. He provided an example during the recent famine when English Parliament prohibited the export of victual to Scotland, claiming that “a third part” of the population “died in the streets and roads” in part because of the actions of the English.¹³⁶ Tweeddale also thought that the Act of Succession would be difficult to pass “considering the forment the nation is in and that from most counties and boroughs the members got instructions against settling the succession at this time.”¹³⁷ Despite this, Tweeddale, perhaps optimistically or because of his backing of the monarch thought that the Scottish Parliament would soon reflect upon this and come around.¹³⁸

¹³² NRS, GD406/1/5094, The earl of Home, Hirsell, to [the duke of Hamilton], 17 Apr. 1704.

¹³³ NRS, GD406/1/5096, The earl of Home, Hirsell, to the duke of Hamilton, 21 Apr. 1704.

¹³⁴ NRS, GD124/10/434, Journal of what occurred in the Parliament of Scotland. With notes of three resolutions, 17 Jul. 1704.

¹³⁵ NRS, GD406/1/5116, Mr. Hodges, London, to the duke of Hamilton, 6, Jul. 1704.

¹³⁶ NRS, GD124/10/434, Journal of what occurred in the Parliament of Scotland. With notes of three resolutions, 17 Jul. 1704.

¹³⁷ NLS, MSS 7121, Letter 30, 18 Jul. 1704.

¹³⁸ NLS, MSS 7121, Letter 32, 18 Jul. 1704.

He was right, at least in part. By the end of July 1704, the succession failed to pass through the Scottish Parliament, however, after “a great deal of struggle” the Scottish Parliament agreed upon a version of the Act of Security under the conditions that if approved by the Queen, they would grant the cess for the military and navy for one year and attempt to secure the advantages of trade through a treaty.¹³⁹ Tweeddale wrote to the Queen that

it is so small [the amount of funds] that it is hardly worth your majesty’s acceptance, but considering the present low circumstances of this nation and the ill temper the people are in, it is more than was expected, and could hardly be obtained had I not to satisfy them in some measure engag’d to interpose with your Majesty for an act of security, which I with all submission doo as that which seems so absolutely necessary to quiet the minds of your people.¹⁴⁰

The above passage shows the position that the English were in at that time. The funds and supplies for the war effort were deemed so necessary, as was having Scotland on their side, that the English and Queen Anne, gave in to the Act of Security. Despite the small amount, Tweeddale still called the cess “a supply to prevent the disbanding of the forces and the bad consequences that might have,” further demonstrating the English need to have this cess passed.¹⁴¹

With different circumstances, in part because of the Great Storm and the Scots Plot and with the addition of a process for a treaty with England, the Act of Security received royal assent that August. Yet, this was not as advantageous to Scotland as it might at first appear. Tweeddale posited that the Act of Security was passed quickly to avoid having additional clauses added into it about communication of trade and so the Queen could get much needed finances and war

¹³⁹ NRS, GD124/10/434, Journal of what occurred in the Parliament of Scotland. With notes of three resolutions, 6 Jul-28 Aug 1704; NRS, GD406/1/7946, The duke of Hamilton, Hollyroodhous, to [his mother Anne, duchess of Hamilton], c 1704.

¹⁴⁰ NLS, MSS 7121, Letter 34 Tweeddale to Queen Anne, 22 Jul. 1704.

¹⁴¹ NLS, MSS 7121, Letter 36, Tweeddale, 22 Jul. 1704.

supplies.¹⁴² Tweeddale thought it remarkable that the Scottish Parliament insisted upon an Act of Security but “seemed willing to accept of without the clause of communication of trade or any other whereto there might be ground of exception as it seems very necessary and reasonable for this nation to have.”¹⁴³

By the end of August, the tide turned more in favor of Anne, the English Parliament, and ministry as news came from the Continent of the Duke of Marlborough’s victory at Blenheim, which secured Vienna from French forces, and the taking of Gibraltar from Spain.¹⁴⁴ The anti-union members of the Scottish Parliament argued that Scotland lost its bargaining chips as word spread about the victories, with one member claiming that it “will make the English soe high ... we shall in this poor nation not reap benefit by it.”¹⁴⁵ Ultimately, the Act of Security became a victory for Queen Anne since it granted her necessary war supplies and funding, much needed after the Great Storm, without granting any guarantees to Scotland in the now upcoming union negotiations.¹⁴⁶

With their initial success in obtaining the cess and bringing Scotland to the negotiating table, the English Parliament flexed its might by introducing two acts of its own. The first, introduced by Lord Somers, initiated union negotiations through an incorporating union under a single parliament with a new proposal for free trade with Scotland. The second, the Alien Act, a response to the Act of Security, further demonstrated English desire to complete union and

¹⁴² NLS, MSS 7121, Letter 42, Tweeddale, 6 Aug. 1704; NRS, GD406/1/7947, [The duke of] H[amilton], Hollyroodhous, to his mother Anne, duchess of Hamilton, 6 Aug. 1704; NRS, GD406/1/7231, [Charles, earl of Selkirk], Holyrudhouse, to his mother Anne, duchess of Hamilton, 5 Aug. 1704.

¹⁴³ NLS, MSS 7121, Letter 36, Tweeddale, 22 Jul. 1704.

¹⁴⁴ NRS, GD406/1/5124, [Gavin Mason] to [the duke of Hamilton], 12 Aug. 1704.

¹⁴⁵ NRS, GD406/1/7985, The duke of Hamilton, Hollyroodhous, to his mother Anne, duchess of Hamilton, 18 Aug. 1704.

¹⁴⁶ NLS, MSS 7121, Letter 44, Tweeddale, 10 Aug. 1704.

secure their northern border. It stated that Scots residing and trading in England would be considered aliens, unless Scotland entered formal union negotiations by the end of 1705. The Alien Act would have greatly harmed Scottish trade and many landowners, and in turn the Alien Act removed much of the bargaining power the Act of Security provided Scotland with as it cut off Scotland from all English trade. It was a measure that many landowners and merchants would have found hard to cope, especially with the poor state of the Scottish economy in 1704 and 1705.

This act raised Scottish suspicions because of the perceived interference of the English Parliament in Scottish affairs, but it further demonstrated the desire of the English court, ministry, and Parliament to have union completed after the Great Storm. Anne Hamilton claimed that people in Scotland were “arming faster than ever” because of the Alien Act.¹⁴⁷ The Duke of Hamilton wrote that England seemingly declared war upon Scotland. He saw them as “bullies” and that “after this wee must not call ourselves independent for here is a plain violation of anything that looks like that for they tell us plainly if wee will not submit to them they will make war here on us.” Hamilton was also upset because many of his actions became misconstrued and argued that the English Whigs had him out to be a Jacobite and the rest claimed he acted in his best interests or was lining his own pockets.¹⁴⁸

By the end of 1704, the Scottish Parliament had two options. The first was to enter into formal negotiations for union, the second was to risk losing a vital trading partner in an already weakened economy, and perhaps gain an enemy. While the Scottish Parliament leaned towards

¹⁴⁷ NRS, GD406/1/6535, Anne, duchess of Hamilton, Hamilton, to her son [the duke of Hamilton], 4 Dec. 1704.

¹⁴⁸ NRS, GD406/1/8071, [The duke of] H[amilton], Preston, to [his mother Anne, duchess of Hamilton], 29 Dec. 1704.

the former, much agitation arose over the process that union negotiations took. For instance, the commissioners to union were not selected in Parliament but rather appointed solely by the Queen and Royal Court.¹⁴⁹ Tweeddale thought it would be easier to accomplish a union since the union commissioners were chosen according to their support of Anne.¹⁵⁰ Yet, it became clear shortly after the English choice for succession was agreed upon that union negotiations still required much care and debate.

¹⁴⁹ NRS, GD406/1/7434, Anne, duchess of Hamilton, Hamilton, to her son [the duke of Hamilton], 16 Aug. 1704.

¹⁵⁰ NLS, MSS 7121, letter 20, 18 May 1704.

CHAPTER 8

The Climate of Union: The Economic and Environmental Politics of Unionism in Scotland, 1705-1707

During 1705, 1706, and into 1707, a pamphlet war raged through Scotland. This ‘war’ centered on the ongoing union negotiations, and chief among these arguments was the economic position of Scotland. While most pamphlet authors disagreed over the solution to Scotland’s perceived problems, there was seemingly universal agreement amongst the pamphleteers that the overall balance of trade for Scotland was poor and growing worse by the year.¹ William Black in his *Essay Upon Industry and Trade* (1706) provided a helpful summary of the most important arguments on trade in Scotland prior to union. Black argued that “industry and trade do so far depend upon one another that without one, the other cannot subsist or flourish. Money is that which supports both” and with improvement in Scotland their money and economy could recover from their current “virtually decayed” state. Furthermore, “by industry is mean’d the useful improvement of the native product of the Nation; and that being managed under due direction will effectually support our foreign trade.” Scotland had enough ‘native products’ to become successful, with Black specifically listing wool, flax (linen), fishing, coal, salt, and lead as the largest industries.²

This chapter explores the political climate of union by tracing those economic arguments from the union pamphlets through to the voting interests of members of Parliament most involved in Scotland’s ‘native products’: coal, wool, flax or linen, salt, herring, cattle, and grain

¹ T.C. Smout, *Scottish Trade on the Eve of Union, 1660-1707* (Edinburgh: London, 1963), 264.

² William Black, *Essay Upon Industry and Trade, Shewing the Necessity of the One, the ... Usefulness of the Other, Etc.* (J. Watson: Edinburgh, 1706) 1-4.

(especially oats). Since some of the largest debates from the Articles of Union were over Scotland's 'native products, or natural resources, and the trade connected to them, it makes sense that these resources, and the trade associated with them, would then influence the voting patterns of members of the Scottish Parliament. The previous chapters have built the idea that considerations both for and against union in Scotland were based upon, at least in part, economic interests, many of which were directly linked to the Scottish environment. By examining the economic and political 'climate' during union negotiations this chapter brings together the ideas and arguments of the previous chapters, demonstrating how climatic and environmental change influenced union voting patterns. Two ways to discover this is through the Articles of the Union that covered Scotland's 'native products' (IV, VI, VIII, XIV, and XV) and by looking at the arguments made by pamphleteers and parliamentarians themselves.

For the pamphleteers, it is impossible to list the writers on both sides of the pamphlet debates on union. This is partially because, as the earl of Mar denoted, there were so many produced, and he believed that because of this "few pamphlets about the Union are worth reading."³ Another reason it is challenging to list the writers on both sides is because a large portion of these pamphlets were printed anonymously. For the Scottish Parliament, the extant records prevent us from going through each member of the Scottish Parliament and finding the precise moment and reasoning for each member's voting. Nevertheless, we can trace some of the larger debates, and then compare this with the interests of members of the Scottish Parliament. By doing so we can, in some cases, draw correlations to suggest reasons for voting, which frequently centered on Scotland's 'native products' of salt, coal, herring (and fishing in general), cattle, linen, wool, and grains (oats). While the previous chapters have explored how the

³ NRS, GD124/15/449/50, Copy of letter to Nairne from Mar, 3 Nov. 1706.

changing climatic and environmental conditions of the second part of the seventeenth century influenced these resources, and in some cases voting patterns, this chapter will solely explore the connections between these resources and voting. More simply, this chapter examines the economic interests of Scotland that were highly influenced by the climatic and environmental changes during the Global Little Ice Age and became most influential in the final union discussions.

For those wanting a thorough overview of each step in the build up to the passage of the Union and the negotiations into 1707, this chapter will be disappointing. There is enough material from the end of the 1690s until the Scottish Parliament approved union to write an entire work on the steps within both Parliaments that led to this. In fact, several have studied this exact subject.⁴ Instead, this chapter provides a brief overview of Scottish economic interests, largely through political discussions, starting in 1705 and going until 1707 and examines in more detail the links between individual members of the Scottish Parliament and groups that influenced voting of Scottish Parliamentarians and their connection to Scotland's natural resources. Since one of the goals of this work is to show the importance of the environment within the Anglo-Scottish Union debates, this chapter's emphasis leads readers towards a separate set of figures from typical Union histories. That is not to say that some of the more prominent members of the Scottish Parliament are absent in this discussion, but that this chapter demonstrates the power and interconnection between the resources *and* the people voting. It provides insights into social power being a study of political and socioeconomic elites.

⁴ More recently see Karin Bowie, *Scottish Public Opinion and the Anglo-Scottish Union, 1699-1707* (Woodbridge: Boydell & Brewer, 2011); Christopher Whatley and Derek J. Patrick, *The Scots and the Union* (Edinburgh: Edinburgh University Press, 2006); P. W. J. Riley, *The Union of England and Scotland: A Study in Anglo-Scottish Politics of the Eighteenth Century* (Manchester: Manchester University Press, 1979).

Party Politics in Scotland

Before delving into the economic arguments over union, it is important to discuss the state of Scottish politics at the start of union negotiations. A quick overview from the Scottish Parliamentary session of 1703 provides the best place to begin a brief introduction into party politics in Scotland. By 1703, political parties had just begun to dominate the political scene, having some pull over their party's voters. While this was true in some cases, there were of course many exceptions, especially during union debates. Nevertheless, the Parliamentary session of 1703 initiated what would become some of the most important sessions of parliament in Scottish history, and it was here where we see the development of two major political parties, in addition to two smaller parties, shifting the lines of debate.

The more regular meeting of the Scottish Parliament from the time of William and Mary and later during Anne's reign (10 times in 12 years) helped develop the establishment of the two major Scottish political parties; the Country and Court Parties. The duke of Hamilton, his brother in law, John Murray the earl of Tullibardine, and after 1703, the duke of Atholl all led the Country Party.⁵ During the union negotiations the Country Party claimed to represent Scotland's national interests while opposing union. They often argued that the monarch was Anglo-centric, absent from Scottish interests, and utilized a Scottish ministry that simply agreed with London.⁶

Next, there was the Court Party, led by Queensberry, with the Earl of Seafield (duke of Argyll) and the earl of Mar lending support. The Court Party usually agreed with or at least followed the decisions of the monarch in London, leading to their moniker, and was typically funded, at least in part, from England (London). A large portion of the Court Party was also

⁵ Bowie, *Scottish Public Opinion and the Union*, 16.

⁶ Bowie, *Scottish Public Opinion and the Union*, 17.

Presbyterian, and frequently held high paying positions within the Scottish government. They supported union, Queen Anne, and most things English or from the Royal Court.⁷

While the Court and Country parties were the two main groups, there were some smaller but significant parties as well. This included the Cavaliers, which frequently consisted of announced Jacobites, crypto-Jacobites, and Episcopalians. With Hamilton and Atholl's encouragement, the Cavaliers aligned with the Country Part in 1703 to help redress the influence of English ministers in Scottish affairs.⁸ By 1705, the vast majority of the Cavaliers were against the union, if for no other reason because of Scotland settling on the English choice for succession of the monarch.

The final group emerged out of the 1703 Parliamentary session through a fracture in the Country party. The Squadrone Volante, or the flying squadron, broke away from the Country Party as a "Whig faction," led by John Hay 2nd marquis of Tweeddale and included John Leslie, 9th earl of Rothes, and Robert Kerr, 5th earl of Roxburgh.⁹ They were generally moderate Presbyterians that were opposed to the Episcopal church and the Jacobites.¹⁰ During the union negotiations, the Squadrone Volante aligned itself with the Court Party. Although the Squadrone Volante only consisted of close to 30 members, out of the roughly 200 sitting members of the Scottish Parliament, their break from the Country Party and switch to the Court Party shifted the Parliamentary balance in favor of union, at least in general terms, and helped push through many of the Union Articles. For instance, the first Article of Union saw 93 in favor to 83 against with

⁷ Whatley, *Bought and Sold for English Gold*, 42-3.

⁸ Allan I. Macinnes, "Anglo-Scottish Union and the War of the Spanish Succession" in eds. W. Mulligan, and B. Simms, *The Primacy of Foreign Policy in British History, 1660-2000: How Strategic Concerns Shaped the Modern World* (New York: Palgrave Macmillan, 2011), 55.

⁹ They supposedly earned this nickname because their members often changed sides like a fleet of ships in the wind.

¹⁰ Macinnes, "Anglo-Scottish Union," 58; Whatley, *Bought and Sold for English Gold*, 42-3.

22 of the Squadrone Volante in favor.¹¹ As we can see here, party politics played an important role in the decisions to vote for and against union, but to argue that it was political parties that determined the union is misguided. After all, this tells us little about the underlying motivations that determined party affiliation, and, furthermore, there were multiple examples of Scottish Parliamentarians voting against the party line.

Religion and Union

Just as political allegiance, environmental, and climatic factors played a significant role in the discussions of union, there is no doubt that religion too was a significant factor. The importance of religion cannot be overlooked in discussions of the Union, or in Scottish history, as the church and the state were closely interconnected, and at times influenced decisions within the political realm. One of the largest religious factors within union discussions was the differences between the Scottish and English churches, and the protection of the Scottish church.

For much of the sixteenth century, there was a growing movement in Scotland to change the national religion and church. This process or battle for the ‘souls of Europe’ (and on into the rest of the world), more commonly referred to as the Reformation, which in Scotland, like in many places, was a lengthy process. In 1560, the Scottish Parliament recognized the Presbyterian Church as the national church, or kirk, led by the efforts of John Knox, a follower of John Calvin, and the Protestant leaning Scottish nobility. Although the Scottish populous still held various religious views, the Scottish kirk attempted to gain and convert followers up through the time of union negotiations. England went through a similar process except that the national church became Anglican, referred to as Episcopal outside of England because it was presided over by bishops.

¹¹ NRS, GD158/938, Notes upon votes for union; and on proceedings of parliamentary committee for examining calculation of equivalent 1706.

In Scotland, there remained much fear and disdain over the next century and a half towards Catholicism and more Catholic forms of Protestantism, such as Episcopacy, which was perceived by Presbyterians in Scotland to lean closer to Catholicism than Protestantism because it utilized several practices leftover from the Catholic Church.¹² The importance of the national church to each country and to many of the people within each country cannot be overstated. Continental wars and local executions took place throughout this period for control or direction of the national church. In Scotland, localized violence and conflicts with their European neighbors over the national church continued into the eighteenth century and created a tense political climate during much of this time, especially so during the Union negotiations.

By the time of the Union negotiations, Scotland was Presbyterian, at least as the official church, and England was Anglican or Episcopal. Because of this, religion was a divisive topic for both sets of Parliaments and union negotiators, as each kept a watchful eye over concessions made to the other's religion since union would not have passed either Parliament.¹³ The earl of Leven, one of the commissioners for the Union, wrote that while both sides made progress in the Union negotiations, religion was a challenge and best left out of the Union. His solution was a toleration of faiths as a separate article in the Union.¹⁴ Although protecting the Scottish church was left out of the Union, it did receive protections in a separate act of the Scottish Parliament, which was carried on after the Union.¹⁵ Yet, even this did not remove some of the fear from each

¹² Whatley, *Scots and the Union*, 36.

¹³ Two of the more recent works exploring Scottish religion and union are Jeffrey Stephen, *Scottish Presbyterians and the Act of Union 1707* (Edinburgh: Edinburgh University Press, 2007) and Alasdair Raffe, *The Culture of Controversy: Religious Arguments in Scotland, 1660-1714* (Cambridge and New York: Cambridge University Press, 2013).

¹⁴ NRS, GD26/13/136/3, Letter from [the Earl of Leven?], one of the Commissioners for the Union, to the Earl and Countess of Melville, discussing matters relating to the Union. 1706.

¹⁵ Records of the Parliament of Scotland, 12 Nov. 1706.

side regarding religion. The particularly negative views of Scots and the Scottish church presented in *A Trip Lately to Scotland* (1705) described Scots as fat (but also starved), slow, lazy, and full of gout, lice, and altogether indecent people whose churches were full of cobwebs.¹⁶ While this view was not fully representative of what all English thought of Scots, it had its suitors and demonstrated some of the resentment towards Scotland and the Scottish church during the Union negotiations.

A similarly negative view of the English church was reciprocated in a 1706 petition from people in the “south and western shires” against union largely upon religious grounds, claiming that England was full of poor Christians and the Scottish church would not be protected in a union.¹⁷ Addresses from the Presbytry of Hamilton and Lanark also opposed the Union because it went against the church of Scotland, the laws of Scotland, and it “infringes” upon their civil liberties.¹⁸ Given that the Hamilton family was largely against the Union it was unsurprising that the Presbytry would be opposed as well. This was not an isolated incident, as there were several occasions where Presbyterian ministers spoke out and even preached against the Union in 1706 and 1707.¹⁹ This included John Logan, a minister at Alloa, who saw the Union as dangerous to the Church of Scotland.²⁰

¹⁶ *A Trip Lately to Scotland. With a True Character of the Country and People: Also Reflections on their Proceedings to Disturb the Present Reign: To which are Added Several Remarks, on the Late Barbarous Execution of Capt. Green, Mr. Madder, Mr. Simpson, and Several Others. With an Elegy of their (unmerited) Deaths* (London: printed and sold by S. Malthus in London-House-Yard, 1705), 3, 4, 6.

¹⁷ *To his Grace, her Majesties High Commissioner and Honourable Estates of Parliament, the Humble Address of a Considerable Body of People in the South and Western Shires* (Edinburgh, 1706).

¹⁸ *Humble address of Presbytrie of Lanerk* (Edinburgh, 18 Nov. 1706); *Humble address of Presbytry of Hamilton* (Edinburgh, 11 Dec. 1706).

¹⁹ NRS, GD124/15/462/6, Letter to the Earl of Godolphin, Lord Treasurer of England, from the Earl of Mar, in Edinburgh, 26 Oct. 1706.

²⁰ NRS, GD124/15/457/1, To the Earl of Mar from John Logan, Minister at Alloa, 27 Aug. 1706.

Not all Scots were against the Union because of religion and some even supported union because of it. For instance, the “inhabitants of Midlothian” expressed their pleasure with union claiming that it promoted their “civil and religious interests.”²¹ This was perhaps driven by the assurance from the Scottish Parliament late in 1706 that the Scottish Kirk would be protected after the union.²² John Arbuthnot published a sermon in December 1706 preaching the benefits of a union with England. Yet even in this more religious take on union, Arbuthnot frequently addressed the Scottish economy. Arbuthnot argued that union would increase trade and manufactories in Scotland and specifically mentioned that fishing needed to be better utilized, describing it as the salvation right at their doors.²³

Scottish Trade in the Pamphlet War of 1705-07

In the buildup to the Scottish union negotiation voting (1704-06), trade that utilized Scotland’s ‘native products’ was the most talked about issue in Scotland. In fact, one pamphleteer argued that “it is know[n] through all the habitable world that it is trade that is the source and fountain of all happiness to any kingdom or state,” however, this did not include Scotland since its trade had decayed.²⁴ Others had more hope because if Scotland could somehow improve its trade, it could lead to power and wealth. For some, this took the form of a free trade agreement with England (union). Andrew Fletcher of Saltoun in *Scotland’s Interest* (1704) argued that a trade agreement between Scotland and England would increase financial success if for no other reason than it would have provided an export market in the Indies for

²¹ NRS, GD124/15/721/2, Letter to the Earl of Mar from Sir Robert Dickson, address to the Queen from the inhabitants of Midlothian, Nov. 1707.

²² Records of the Parliament of Scotland, 12 Nov. 1706.

²³ John, Arbuthnot, *A sermon preach’d to the people at the Mercat Cross of Edinburgh; on the subject of Union* (Edinburgh, Dec 1706], 6.

²⁴ *Several Grievances Given by a Countrey Men Anent Decay of trade Within the Kingdom of Scotland* (1703), 1.

linen and woolen products.²⁵ For others, like William Seton, Scotland could make improvements of its own by trading its natural resources or “chief branches” of trade (herring, wool, linen, and grains).²⁶ Like so many previous authors, Seton discussed the importance of developing herring and the fishing trade of Scotland, which could “recompence of the infertility that appears in some parts of the soil of the kingdom, which to us, in respect to commerce [herring] are as valuable a source of wealth as the indies to Spain, or the plenty of wool to England.²⁷” Wool was another essential commodity which Seton argued needed more development if they ever wanted a serious export market.²⁸ Linen and flax also caught Seton’s eye because he argued England would not improve here since they could trade for these products with their “excellent” wool.²⁹ Seton would go on to vote in favor of the Union arguing that, if for no other reason, union could promote trade, which was better than any other alternative.³⁰

This renewed emphasis on trade and the Union saw a pamphlet war break out in Scotland. While topics ranged from religion to politics and war to utopia, the most common topics were trade in Scotland’s ‘native products’ and the floundering Scottish economy. The most well-known pamphlet writer, at least by today’s readers, was Daniel Defoe. While it was known at the time that Defoe was writing on behalf of the Crown, that does not detract from his commentary pointing out some of the more important topics of the Union debates, which

²⁵ Andrew Fletcher of Saltoun, *Scotland's Interest or, The Great Benefit and Necessity of a Communication of Trade with England. Being a Brief Account* (1704), 5.

²⁶ William Seton of Pitmedden, *Some Thoughts, on Ways and Means for Making This Nation a Gainer in Foreign Commerce; and for Supplying Its Present Scarcity of Money* (Edinburgh: Printed by James Watson, 1705), 19.

²⁷ Seton, *Some Thoughts on Way and Means*, 19-20.

²⁸ Seton, *Some Thought on Ways and Means*, 27, 33.

²⁹ Seton, *Some Thoughts on Ways and Means*, 35.

³⁰ William Seton, *A Speech in Parliament the Second Day of November 1706. By William Seton of Pitmedden Junior, on the First Article of the Treaty of Union* (Edinburgh, 1706).

centered upon Scotland's natural resources. For instance, while writing as a 'merchant' in 1706 Defoe argued that union was a great advantage to Scottish merchants because it had the good of the country in mind. The more tangible benefit was that taxes on salt and herring would be evened out by a bounty system and that other taxes, such as those on malt, would end once the war of the Spanish Succession concluded.³¹ Defoe often tried to dampen fears that the Union would raise taxes on more "essential" goods like malt and ale, often claiming that other tracts on these topics had been miscalculated, or that even with these taxes Scots would pay less for these items because it meant cheaper resources from England and no import duties.³² He frequently went back to the linen and wool trade in his arguments claiming that linen would be the biggest winner from union.³³

In over a dozen pamphlets from 1705-07 and a subsequent history of the Union, Defoe wrote in support of union. Sometimes he advocated more generally that union created free trade and prosperity.³⁴ In others he targeted trade in linen, cattle, woolen manufactories, fishes, grains, coal, and salt.³⁵ Defoe's *Fifth Essay* (1707) offered simplicity as the main reason to support union, arguing that Scotland would not have to change its ways to become successful with the Union, but this too was focused on Scotland's trade and resources.³⁶ For instance, Scots could

³¹ Daniel Defoe, *A Letter Concerning Trade from Several Scots Gentlemen that are Merchants in England to their Country-men that are Merchants in Scotland* (Edinburgh, 1706), 3, 7.

³² Daniel Defoe, *The State of the Excise After the Union Compared With What it is Now* (Edinburgh 1706); Daniel Defoe, *Considerations in Relation to Trade Considered, and a Short View of our Present Trade and Taxes, Compared With What These Taxes May Amount to After the Union, &c. Reviewed....* (Edinburgh, 1706), 20-1.

³³ Defoe, *Considerations in Relation to Trade Considered*, 23-4.

³⁴ Daniel Defoe, *A Seasonable Warning or the Pope and King of France Unmasked* (Edinburgh, 1706), 6-9.

³⁵ Daniel Defoe, *A letter from Mr. Reason, to the high and mighty Prince the Mob* (Edinburgh, 7 Nov. 1706), 2-3.

³⁶ Daniel Defoe, *A Fifth Essay, at Removing National Prejudices: With a Reply to Some Authors, who have Printed their Objections Against an Union with England* (Edinburgh, 1707), 2.

continue in the linen trade but with more success because England would buy more goods. Union also meant access to Spain and the Canary Islands for linen and cattle exports, presuming the two were not at war.³⁷ Other resources like coal, salt, wool, and grains would double their exports because of access to plantation markets.³⁸

Defoe's most intriguing argument found in *Caledonia: A Poem in Honour of Scotland and the Scots Nation* (1706) threw flattery at Scots in a way that also highlighted Scotland's poor economic and natural conditions. This attempt to win people over to the Union asked readers to look at the wisdom and power of nature since nature "foreknows a Nations fate."³⁹ Defoe began this poem describing the difficult conditions of living in Scotland, where "in northern heights, where Nature seldom smiles ... [the] winds incessant blow, and waves incessant roll." In perhaps a reference to the more recent climatic conditions, he mentioned the "tyrant cold" or what he described as the "continual cold" and the abundance of snow and ice.⁴⁰ Despite how difficult it was living in these natural disadvantages, Defoe saw hope because "nature dictates" that Scotland and England unite.⁴¹ Even with the "inclement air [and] inhospitable clime" Scotland was a useful trading partner for England since "even the meanest parts of Nature have their use."⁴²

³⁷ Defoe, *A Fifth Essay*, 9-10.

³⁸ Defoe, *A Fifth Essay*, 16, 24.

³⁹ Daniel Defoe, *Caledonia: A Poem in Honour of Scotland and the Scots Nation. In Three Parts. Edinburgh, Printed by the Heirs and Successors of Andrew Anderson, Printer to the Queen's Most Excellent Majesty* (Edinburgh, 1706), 6.

⁴⁰ Defoe, *Caledonia*, 1.

⁴¹ Defoe, *Caledonia*, 3.

⁴² Defoe, *Caledonia*, 2.

Not everyone adhered to Defoe or his arguments. George Lockhart of Carnwath in his memoirs of the Union referred to Defoe as “the vile monster and wretch.”⁴³ John Hamilton, Lord Belhaven, wrote *An Equivalent to Defoe* (1706) where in this one-page witty poem he attacked Defoe as a paid writer for the Union. Belhaven even went so far as to claim that Defoe would serve any entity that provided for him, “either Jehovah or the Golden Calves.”⁴⁴ In his several pamphlets and speeches in the Scottish Parliament, Belhaven developed anti-union tracks, while still attacking Defoe and claiming to look out for Scotland’s best interests.⁴⁵ Belhaven argued that union would destroy Scotland religiously, legally, and economically, picking up on several common anti-union economic arguments: that tradesmen would suffer from taxes, everyone would drink water instead of ale because of high taxes, people would eat salt-less porridge, and that grain would rot waiting to be sold in a flooded market.⁴⁶ Belhaven though had his own detractors, especially after comparing the Union to the “treaty” offered to Eve; as one author painted their own Edenic union vision in response to Belhaven where greater trade opportunities with “France and Spain will send them [Scotland] wine and fruits, Italy perfumes, the plantations sugars, and the world be their granary.”⁴⁷

Even in their counters to Defoe and the Union, like in Belhaven’s works, Scottish pamphleteers frequently discussed Scotland’s trade and natural resources. William Black, who

⁴³ George Lockhart of Carnwath and Daniel Szechi, *Scotland’s Ruine* (Aberdeen: ASLS, 1995 [1714]), 147.

⁴⁴ John Hamilton, Lord Belhaven, *An Equivalent for De Foe*, (Edinburgh. 1706).

⁴⁵ John Hamilton, Lord Belhaven, *The Lord Belhaven’s Speech in Parliament, the 15th Day of November 1706, on the Second Article of the Treaty* (Edinburgh, 1706), 5.

⁴⁶ John Hamilton, Lord Belhaven, *The Lord Belhaven’s Speech in Parliament the Second day of November 1706. On the Subject-matter of an Union Betwixt the Two Kingdoms of Scotland and England* (1706), 1, 3, 9, 11.

⁴⁷ *An Answer to my Lord Beilhaven's Second Speech, Demonstrating the Advantages that will Ensue to Both Nations by the Union, &c.* (15 Nov. 1706), 1-4.

was often critical of the articles within the Union and Defoe (he claimed Defoe was an alien, unaware of how trade, politics, or government operated in Scotland), argued that Defoe misled people on the amount of salt needed to cure fish in Scotland and that fishing served as “the great bait and the promising hopes of an union.”⁴⁸ Black did see some advantages to union, especially with Scotland’s resources of wool, flax, black cattle, pork, salt, coal, lead, and fishes, which he argued was worth more than any nation in Europe and a union on equal terms would improve these industries.⁴⁹ Nonetheless, Black was still skeptical of the current union arguing that the wool, cattle, and grain industries would all lose out in the union currently offered, with free trade being the “great bait” to take on English debt and taxes.⁵⁰

Several others, including Andrew Fletcher, who was never shy to voice his displeasure with most forms of government, also utilized trade in their counters to union.⁵¹ Fletcher posited that trade was the “trojan horse” of the Union and that the equivalent was a “decoy duck.”⁵² Outside of voting against the Union, Fletcher’s solution was to put all effort towards the fishing industry because fish are “of more certain value than all the wooll in Christendom,” and while sheep production was limited, the sea was inexhaustible.⁵³

⁴⁸ William Black, *A Letter Concerning the Remarks Upon the Considerations of Trade, by the Author of the 4th Essay, at Removing National Prejudices* (1706); William Black, *Answer to a Letter Concerning Trade, Sent from Several Scots Gentlemen, that are Merchants in England, to their Countrymen that are Merchants in Scotland* (Edinburgh, 7 Dec. 1706), 2.

⁴⁹ William Black, *Some Consideration in Relation to Trade Humbly Offered to his Grace Her Majesty's High Commissioner and the Estates of Parliament* (Edinburgh, 1706), 3; Black, *Answer to a Letter Concerning Trade*, 3.

⁵⁰ Black, *Some Consideration in Relation to Trade*, 7-8; William Black, *Some Overtures and Cautions in Relation to Trade and Taxes, Humbly Offered to the Parliament. By a Well-wisher to his Country* (Jan. 1707), 4.

⁵¹ *A Copy of a Letter from a Country Farmer to his Laird, a Member of Parliament* (1706), 1-4.

⁵² Andrew Fletcher of Saltoun, *A Letter Concerning the Consequence of an Incorporating Uniou [Sic], in Relation to Trade* (Edinburgh, 1706), 3, 25.

⁵³ Fletcher, *A Letter Concerning the Consequence of an Incorporating Uniou*, 19, 22.

Article IV: Trade

As many of the previous pamphlets demonstrated, trade, more generally, was an important part of the Union negotiations. The IV Article of Union focused on Scotland's trade with England and saw that Scotland enjoyed a free communication of trade with England. While many articles received final approval in an afternoon, the IV article took two days to debate having "all the fury in the world that the trade of England would be disadvantageous to this kingdome."⁵⁴

As the pamphlets and the IV article debates demonstrated, trade was an important motivating factor in voting for union. For instance, by the time of the Union negotiations, the "burg of Dundee" was in "great debt, distress and decay." A 1705 petition to the Scottish Parliament from the "Provost, baillies, town council, and community of Dundee" argued that this went back to the warfare of the 1640s. They had subsequently suffered a "decay of trade" which failed to improve in the following 60 years since and they claimed to be over £120,000 scots in debt, which grew by £6,000 scots per year.⁵⁵ While this may not have been the only reason why John Scrimsour, the representative from Dundee, voted in favor of union, the "decay of trade" and conditions in Dundee was certainly to be among them. There was also a 1707 memorial to Queen Anne from "twenty members of the nobility and gentry of Scotland" that discussed the IV Article of Union as being beneficial to them and helping to sway several Scottish peers.⁵⁶ This was not just flattery to the Queen either, as 20 members of the Scottish Parliament who voted in

⁵⁴ NRS, GD158/1151, (John, 2nd) duke of Argyll, Edinburgh, to [Marchmont? or Godolphin] 22 Nov. 1706.

⁵⁵ NRS, GD124/10/444/20, Printed petitions, memorials and other representations addressed to the High Commissioner and Estates of Parliament, 1705.

⁵⁶ NRS, RH1/4/36, Copy memorial to Queen signed by twenty members of the nobility and gentry of Scotland, anent forthcoming union between Scotland and England c 1707.

favor of the IV article, ended up voting against the Union itself in the final vote, denoting the importance of trade. In fact, of the three levels of the Scottish Parliament, nobles, shire, and burgh representatives, the nobles had an overwhelming majority of support for union. A free communication of trade and resources from Scotland and England would likely have been important for the nobles since close to 15% of Scottish nobles had English wives, and in turn, English estates.⁵⁷

Merchants too had important reasons to support free trade that the IV article promised. Alexander Maitland, a Scottish merchant, who voted in favor of union would have likely agreed with the Scottish peers that the IV Article of Union was to their advantage. Maitland traded in various goods but had specific interests in skins, cloth, salt (note he traded in but did not produce salt), and grains, all of which were likely to benefit from union and the protections offered in the IV article.⁵⁸ Patrick Ogilvie, who voted in favor of the Union was involved in Scottish trade, purchasing shares in cargo ships and exporting goods.⁵⁹ The Union, and the IV article in particular, would certainly have helped expand his trade options. Ogilvy was also in charge of preventing Irish goods like grain, horses, cattle, and “other goods” from entering Scotland, but he felt this an impossible task, which had cost him dearly without any government help. Ogilvy also mentioned that Archibald Campbell (who voted in favor of several union trade articles) and those who lived along the western coast of Scotland, had suffered greatly from the illegal imports into Scotland. In his 1705 petition to the Scottish Parliament, Ogilvy claimed that he was enforcing the embargo for the good of his country rather than personal gain, however, a union would have

⁵⁷ McLean, *What's Wrong with the British Constitution?*, 60-1.

⁵⁸ NRS, RH15/14/96, Letters from Alexander Maitland, Arduny, to Alexander Campbell merchant in Edinburgh, 1702-1707.

⁵⁹ NRS, AC10/10, Petition for Patrick Ogilvie and Partners, 1704.

been able to provide Ogilvy with the 25 dragoons and two ships he wanted to help patrol the coasts. From Ogilvy's perspective, union would have benefitted the country, but the IV article also provided financial protections in trade, which would have helped him personally.⁶⁰

The IV article was not enough for others as the burgh of Stirling sent their petition stating that they could not support the current form of the Union as it stood in November 1706. This was largely because it would bring "an insupportable burden of taxations upon this land" that no "freedom of trade will never counter balance." They believed that the English Parliament and the Union would ruin their manufactories. This was supported by Perthshire, Saline, Carnock, Torie, and Fifeshire who sent in their petition with the same concerns.⁶¹ Not everyone objected so peaceably, as Edinburgh saw a "mob" continuously yelling that it would be taxed excessively because of union. Several people harassed the dukes of Hamilton and Montrose. Others assaulted the house of Patrick Johnstone, breaking windows and tried to beat down his door claiming that "they would massacre him for being a betrayer and seller of his country." In response, guards and troops remained on alert until the end of the parliamentary session, which helped restore some order.⁶²

Darien, Article XV, and Union

There is no doubt that the poor economic conditions in Scotland played a role in the discussions about union. John Clerk of Penicuik's account of the Union (1706) regularly

⁶⁰ NRS, GD124/10/444/52-54, Printed petitions, memorials and other representations addressed to the High Commissioner and Estates of Parliament, 1705.

⁶¹ *The Following Two addresses were Presented and Read in Parliament, Upon Saturday the 23 of November 1706. To His Grace Her Majesty's High Commissioner, and Estates of Parliament. The Address of the Provest, Baillies, Town-Council, and Other Inhabitants of the Burgh of Stirling; To His Grace Her Majesty's High Commissioner, and the Right Honourable the Estates of Parliament, the Address of the Heritors, Magistrates, Town-Council, and Other Inhabitants Within the Town and Paroch of Culross in Perth-Shire, and of the Heritors and Other Inhabitants of the Parodies of Saline, Carnock, and Torie in Fife-Shire* (1706).

⁶² NRS, GD124/15/449/44, Letter to Nairne from Mar, 26 Oct. 1706.

referenced the poor economic situation in Scotland and the possibilities that union offered. While drawing on the poor conditions in Scotland, Clerk wrote that “some are regretting the extream poverty of the nation and scarcity of money,” and he discussed how it was commonly argued that union would ruin Scotland. For Clerk, this argument failed to hold up writing that, “’tis scarce conceivable how any condition of life, we can fall into, can render us more miserable and poor than we are. For it is very well known, that many of us live with difficulty, and many thousands of our nearest relations are obliged to leave their country for want of bread and employment.”⁶³ Clerk’s example provided a compelling case for those who might turn to union for economic help.

Darien became one of the major debates over union because of the poor economic situation in Scotland. The linking of its collapse to the actions of the English and reparations to Scotland from England associated with the collapse of Darien became major negotiating points for those who sought English help with the Scottish economy. In the negotiations for union, the earl of Mar provided an account of Darien for the commissioners of the Union. Mar plainly argued that the Company of Scotland suffered “repeated injuries and loss” because of “the undue and unfriendly measures taken from time to time by the [English] government.” Because Darien was an attempt to improve Scotland, Mar posited that these acts were taken against the whole country.⁶⁴ Mar certainly was not alone with his feelings towards England, but while the Scottish Parliament still supported the Company of Scotland after the collapse of Darien, Andrew Mackillop (2009) argued that this was mainly done as a bargaining chip in Anglo-Scottish

⁶³ John Clerk of Penicuik, Edinburgh, *Letter to a Friend Giving an Account of the Union*, 6 Nov. 1706, 6.

⁶⁴ NRS, GD124/15/386, Letter to the Earl of Mar from Sir Robert Blackwood, 20 Apr. 1706.

negotiations.⁶⁵ The first union negotiations under Queen Anne in 1702 set up the possibility of compensation for the damages suffered at Darien. The only problem for the Company of Scotland was that one of the main stipulations of the Scottish representatives for union was free trade, but to obtain this, English negotiators wanted the dissolution of the Company of Scotland.⁶⁶ By 1706, the XV Article of Union discussed the arrangement for Darien reparations and the dissolution of the Company of Scotland.

In the Articles of Union, Article XV dealt with the equivalent, or the amount of compensation that Scotland should receive for its losses at Darien and to help assist with new taxes and with taking on the burden of English debt. Daniel Defoe wrote that the XV Article “made more noise in the world than all the other articles” in part because of the potential assistance the XV Article provided to many parts of the struggling Scottish economy.⁶⁷ David Gregory and William Paterson were two of several who calculated the necessary amount for England to pay to Scotland for the Scottish economy to improve.⁶⁸ Paterson calculated that this amount of ‘equivalent’ should be £600,000 and, from that, £260,000 should go to improving the Scottish economy with the rest going to the Company of Scotland.⁶⁹ Notwithstanding Paterson’s calculations, Scotland only received £398,085. The Company received £233,000 and £165,000 went into the Scottish economy, £95,000 less than what Paterson had calculated.⁷⁰

⁶⁵ Andrew Mackillop, “A Union for Empire? Scotland, the English East India Company and the British Union,” *The Scottish Historical Review* 87 (2009): 126.

⁶⁶ Mackillop, “A Union for Empire?,” 126-7

⁶⁷ Defoe, *Union*, 455.

⁶⁸ Clerk and Grey, *Memoirs of John Clerk*, 61-62.

⁶⁹ William Paterson, *An inquiry into the reasonableness and consequences of an union with Scotland: Containing a brief deduction of what hath been done, designed, or proposed, in the matter of the union ... Also states, of the respective revenues, debts, weights, measures, taxes and impositions* (London: Printed and Sold by Ben Bragg, 1705), 93-4.

⁷⁰ Scotland, *Acts of Parliament of Scotland*, XI, 490.

Unsurprisingly, the directors were unhappy with the amount the Company received stating that “it can never be thought adequate to the great losses and damages sustained by our Company.”⁷¹ They were further incensed because the Union stipulated that the Company would be dissolved, and it also meant that Scotland lost its right to form trading companies independent of England.

In 1706, Paterson also provided his feelings on union and the Scottish economy. He wrote that the Union negotiations, which were currently ongoing, were the result of the Company of Scotland. He even argued that because of the Company’s failures, it was more successful at improving the economy than anyone could have imagined because the end result of union would bring in more wealth than Darien ever could have.⁷² This was quite a big shift from his views almost 10 years earlier when he saw a Scottish Darien providing the keys to the trade of the world. He had not completely given up hope for Darien, however, as he argued that with English assistance, they now could control Havana and Darien and would obtain “the keys” to trade.⁷³

Paterson also included in his account the thoughts and opinions of those who were skeptical of the Union and wrote that there were those in Scotland who still believed that the advantages of English trade failed to outweigh the cost of taking on the English debt and taxes.⁷⁴ To help offset those fears, Paterson provided several examples of how the taxes and debts of the English would benefit Scotland. Unsurprisingly, one of the examples Paterson focused on included the herring trade and fisheries of Scotland. He posited that 15 or 16 towns in Scotland would receive £50,000-60,000 each for the maintenance of “public busses and other fishing

⁷¹ Roderick MacKenzie, *A Full and Exact Account of the Proceedings of the Court of Directors and Council-General of the Company of Scotland Trading to Africa and the Indies* (Edinburgh: [s.n.], 1706), 19-21. They were upset about receiving only 5 percent of what they invested for damages, whereas the East India Company received 8 percent for damages.

⁷² Paterson, 8 Oct. 1706, *Writings*, Vol.3, 20.

⁷³ Paterson, *Writings*, Vol. 3, 24.

⁷⁴ Paterson, *Inquiry into the Union*, 120-8.

vessels” and that any taxes associated within fishing would be beneficial to Scotland because taxes would mean increased markets and business after the Union.⁷⁵ Paterson’s arguments for union showed the transition of someone in the Company who supported union, even though it meant an end to the Company of Scotland. It also highlights some of economic reasons why members of the Scottish Parliament believed that the Union was an advantage for Scotland. For Paterson, union was better for both countries than remaining separate.

Paterson, though, was not representative of all members of the Company of Scotland. For instance, Andrew Fletcher of Salton, who pushed for a more restrictive version of the Act of Security towards the English, was against the Union because it meant the dissolution of the Scottish Parliament.⁷⁶ Iain McLean (2010) posited that although Darien was a significant factor in the union discussions and negotiations, this was not directly reflected in the voting patterns of those involved with the Company in the Scottish Parliament. In fact, the votes for and against union were nearly split between those involved in the Company who voted on union. McLean identified 99 members of the Scottish Parliament of 1703-07 that had subscribed money to the Company of Scotland, of which, 74 voted in the union debates.⁷⁷ McLean argued that despite the incentive of the equivalent to provide money to Scotland and especially to those who lost money with Darien and the Company of Scotland, voting patterns did not demonstrate the equivalent having a significant influence in voting.⁷⁸

⁷⁵ Paterson, *Writings*, Vol. 3, 23, 35.

⁷⁶ Iain McLean, *What’s Wrong with the British Constitution?* (New York: Oxford University Press, 2010), 66

⁷⁷ McLean, *What’s Wrong with the British Constitution?*, 66.

⁷⁸ McLean, *What’s Wrong with the British Constitution?*, 65-7.

Table 8.1 Voting for first article of union, compared with investors in the Company of Scotland

	Company of Scotland Stockholder Votes (%)	Non-Stockholder Votes (%)	Total Votes of Scottish Parliament (%)
For Union	41 (55%)	75 (60%)	116 (58%)
Against Union	33 (45%)	50 (40%)	83 (42%)

Source: Iain McLean, *What's Wrong with the British Constitution?* (New York: Oxford University Press, 2010), 67.

Table 8.1 displays the voting patterns of those who invested in the Company and voted in the Scottish Parliament during the debate over the first Article of Union in November 1706. The vote on the first article was a vote to determine if the rest of the debates over union would continue and was a vote to see if Scotland would agree to union. From this table, and as McLean argued, there is no clear correlation between those who had invested in the Company and voting patterns of the Union. As table 8.1 demonstrates votes for union were at 55% and votes against were 45%. In fact, a smaller percentage of people who voted for union had invested in the Company (55%) than those who had not invested and voted in favor of the Union (60%). By the time of the vote on the equivalent, or the XV Article of Union, more voters had switched in favor of the XV Article, 73% in favor and 27% against.⁷⁹ Yet, by that point, the debate surrounding the XV Article was centered more on how money was redistributed to Scotland rather than if there should be a union. As McLean's argument demonstrated, something else motivated those voters. If Darien, and the struggles because of it, were not significantly influencing union votes, then what was? The next section explores the interests in Scotland's resources and environmental changes to those and how this reflected voting.

⁷⁹ McLean, *What's Wrong with the British Constitution?*, 66.

Resources and Union

The previous section examined trade and Scotland's resources more generally as it related to the Union and the interests of some members of the Scottish Parliament. The next section explores the resources themselves, herring, salt, coal, wool, linen, cattle, and grains (oats), in more detail, and, when possible, connects these with groups and individuals voting for and against union. This section helps make clear the connections between Scotland's changing environment and the Union.

Herring, Fishing, and Union

Herring and fishing companies were long considered an important avenue for financial success in Scotland even before the Union debates. For instance, Robert Sibbald studied ways for Scotland to “improve” at the end of the seventeenth century, arguing that the sea and a fishing company provided the best opportunity to improve Scotland, especially if it received the overt financial support and protection of the Crown. He speculated that for every fish caught privately, a hundred might be taken with royal support—an argument that became important during the Union debates.⁸⁰ Sibbald argued that fishing companies or “fishes... are a great principle of foreign trade,” and claimed that Hollanders could raise a million pounds sterling per year from herring and utilized Holland as an example of the available wealth to be made from herring.⁸¹ Not only would a fishing company would advance overall trade in the country, but for Sibbald it would also bring in foreign specie, increase manufactories and ship numbers, and produce much needed sailors, thereby improving Scotland's balance of trade and its position within the

⁸⁰ NLS, Robert Sibbald, *Treatise Concerning the Fisheries in Scotland or an Account of Fishes on the Coast of Scotland*, (1701), 10. (pagination reflects the NLS page numbers and not the numbers Sibbald placed on the pages himself)

⁸¹ NLS, Sibbald, *Account of Fishes on the Coast of Scotland*, 31, 33-34.

European balance of power.⁸² For example, he posited that a fishing company would increase the need for salt, which required “more hands to work our coal” and “more salters to make [the fish] last,” which would in turn employ more fishers. Doing all of this, he said, “means all our poor will be employed and they will be fully paid for their labor.... and they will not only be able to live but have something to lay up.”⁸³

Fish, and especially herring, played a significant role in the lives of many coastal communities in Scotland including farmers, fishermen, laborers, merchants, and even politicians and created groups in support of a union. As such, herring became one of many points debated in the Articles of Union, especially in the VIII and XV Articles of Union. The VIII Article examined salt utilized for herring preservation and went through significant debate during the union negotiations in the Scottish Parliament.⁸⁴ Although the next section examines salt in more detail, it still played an important role in the fishing trade debates as it was argued that “the tax upon salt was intolerable, and that it would destroy the fishery.”⁸⁵ Because of this, there was a significant debate over the salt to be utilized in the preservation of herring and other fishes.⁸⁶ During one of the many days that this article was debated, a petition by the salt owners, fishers of herring and white fish, and others that made use of Scots salt asked to be put at an equal footing with their English neighbors.⁸⁷ After debate, the solution was that the VIII Article set up a bounty system for fishes caught, specifically herring, at 10 schillings per barrel exported. This

⁸² NLS, Sibbald, *Account of Fishes on the Coast of Scotland*, 30, 33.

⁸³ NLS, Sibbald, *Account of Fishes on the Coast of Scotland*, 31.

⁸⁴ Daniel Defoe, *A Collection of Original Papers Concerning the Union Between England and Scotland. Also Journal of the Proceedings of the Treaty, As Well at London As in Edinburgh In Five Parts ... Collected from the Records and Registers* (London: E. Curll, 1711 [1709]), 442.

⁸⁵ Defoe, *Union*, 324.

⁸⁶ Defoe, *Union*, 442.

⁸⁷ Defoe, *Union*, 441.

was meant to help offset some of the costs associated with higher prices on salt, but this also provided a subsidy for herring fishermen and exporters.⁸⁸ Daniel Defoe in his account of the union tells us that while these subsidies would have been helpful, some within the Scottish fishing community still wanted more because of the idea of the necessity of helping the Scottish herring industry to the overall good of the country. As a result, herring endured longer debates in the Scottish Parliament during the final union negotiations than any other fish.⁸⁹

While the VIII Article was important for Scottish herring fishing, the XV Article to the Union cannot be overlooked as it provided funds to Scotland and to several Scottish industries. In fact, it “made more noise in the world than all the other articles.”⁹⁰ To help the Scottish fishing industry, and especially Scottish herring fishing, the XV Article of Union detailed that for seven years, the Scottish fishing industry would receive £2,000 per year from the equivalent that “shall be wholly applied towards the encouraging and promoting the Fisheries, and such other Manufactories and Improvements in Scotland, as may most conduce to the general good of the united Kingdom.”⁹¹ For those who wanted Scotland to become a larger player in the herring fishing trade and for those who saw herring as an outlet for trade in the rest of the world, this article was especially important because it provided the necessary funding and support from the government that had previously been lacking in Scotland.

The XV Article of Union served as motivation for those effected by the herring bust and boom. For instance, with funding from the union, herring offered an opportunity to recover for

⁸⁸ Minutes of the Parliament of Scotland, Minute XLI, 19 Dec. 1706, in Defoe, *Union*, 443-5.

⁸⁹ Defoe, *Union*, 444.

⁹⁰ Defoe, *Union*, 321, 455.

⁹¹ *The Articles of the Union As They Pass'd with Amendments in the Parliament of Scotland: And Ratify'd by the Touch of the Royal Scepter at Edinburgh, January 16, 1707* (London: A. Bell, 1707); Minutes of the Parliament of Scotland, Minute XLVII 30 Dec. 1706, in Defoe, *Union*, 463.

union representatives from Shetland and Orkney. Alexander Douglas of Eagleshay and James Douglas, the Earl of Morton, had strong ties to Shetland and Orkney and both voted in favor of the Union. The importance of the herring fishing industry to the region and the problems the region faced because of the herring decline, informed their decision. The brother of James Douglas, Robert Douglas, the future Earl of Morton, was appointed steward of Orkney and Shetland in 1696, and by 1706, James Douglas began supporting the establishment of a Scottish fishing company operating off the coast of Orkney and Shetland.⁹²

The proposal for this Scottish fishing company showed that James Douglas had an initial plan for this company in 1706 that gathered support solely from outside investors, but once the Union negotiations occurred the language changed to include some of the subsidies from the Union clauses. He stated that this fishing company, “will be of so great advantage both for the advantage of trade and the increase of her majesties revenue and customs and will therefore of necessity be supported by a considerable stock of money.”⁹³ Douglas specifically mentioned the “clause of union” in his later drafts for this company. By stating that the fishing company would be an advantage to the government’s revenue, Douglas hoped to obtain part of the subsidies promised in the Union for this company. In making this reference James Douglass and his other investors were aware of how union was going to benefit their industry as well as the livelihood of their constituents.⁹⁴

⁹² OLA, D38/2310; OLA, D38/150/2496A, Earl of Orkney (Morton) memorandum and following document, draft signature for a new charter to Earl of Morton to encourage setting up of a fishing trade and supporting materials, 1710.

⁹³ OLA, D38/1694A, indenture, charter relating to the fisheries of Orkney and Shetland 1706-1709.

⁹⁴ OLA, D38/1694A, indenture, charter relating to the fisheries of Orkney and Shetland 1706-1709.

For many others, it was the herring boom after the 1670s that made union look more advantageous. Like many other contemporaries, the significance of herring to the Scottish economy and herring being the keys to larger trade motivated John Clerk of Penicuik as well. Clerk, a member of the Scottish Parliament, wrote about the importance of herring to Scotland in two pieces in the year before union and listed herring as one of the three major products of Scotland, the other two being linen and black cattle.⁹⁵ In addition, he commented on the importance of the union to the herring trade writing that it is “scarce probable we shall turn considerable fishers unless assisted by a public stock” or that without the financial support of the union, they will not be successful in the herring trade.⁹⁶ In fact, Clerk saw “the fisheries and particularly the herrings, they will be the *Treasures to Scotland*, which the *World* cannot equal.”⁹⁷

While making a point of why union was essential to the success of Scottish herring fishing companies, Clerk argued that all the previous Scottish projects for fishing have failed because they only sought, or were able to obtain, enough investment to get the project running. The problem with this method was that it would not suit investors who wanted a quick initial return, because, Clerk posited, that with fishing, one had to be happy with smaller gains and returns of only 5-6%, “which can never succeed well amongst those that fish with small stocks.” To demonstrate the necessity of large investments in Scottish fishing companies, Clerk provided the example of someone investing 20,000 merks (Scottish silver coin valued less than a pound Scots), saying that the return of 6% was enough to live upon, but someone who invested 10,000

⁹⁵ Clerk, *Letter to a Friend*, 14.

⁹⁶ John Clerk of Penicuik, *An Essay Upon the XV Article of the Treaty of Union* (1706), 24.

⁹⁷ Clerk, *An Essay*, 24.

merks, could not live on this return. For Clerk, the only way to secure investments of this type was with the money from England that union would bring.⁹⁸

Clerk also argued that the herring trade after a union would help all fishing towns and communities because the English herring ships, or ones that used to be English, had to dock somewhere once the season ended or when they needed supply. Clerk suggested that taking these vessels back to the Thames was too great a risk, so they would dock in Scottish harbors instead. This, he argued, would bring money into Scotland through supplying these men and ships, and the government would have to provide money for new harbors and even villages to support this.⁹⁹ Even in a worst case scenario where an English company set up a herring fishery in Scotland, Clerk still saw this as a potential benefit to Scotland because the English company could more easily get supplies from Scotland, rather than another country in the North Seas market.¹⁰⁰ He also added an aside claiming that the new markets of the Indies would offset any of the problems with a reduced market in Europe.¹⁰¹ Clerk also attempted to curtail the fears of those who were afraid of the possible damage that union could do to the herring trade arguing that “an improvement” of fisheries because of the Union is not a “may be” but a certainty (“certainly will be”). Clerk posited that “merchants must follow out that which is for his most advantage,” which meant that merchants would flock to the herring trade because it would be a great trade of a significant profit and advantage to the country.¹⁰²

For those who were still unsure about the benefits of a union to the herring trade Clerk went over the numbers positing that the Dutch made over £1,000,000 per year selling herring to

⁹⁸ Clerk, *Letter to a Friend*, 21.

⁹⁹ Clerk, *Letter to a Friend*, 22.

¹⁰⁰ Clerk, *Letter to a Friend*, 21.

¹⁰¹ Clerk, *Letter to a Friend*, 17.

¹⁰² Clerk, *Letter to a Friend*, 21.

the Baltic and that the English bought over £400,000 worth of supplies from Baltic (including herring).¹⁰³ Clerk argued that for “this reason alone for promoting the herring fisheries should induce us to an Union with England, for nothing is more certain, than that the English must fall in to this trade [herring trade] for saving near £400,000 that is yearly exported in specie and bills for naval stores in Sweden in Denmark; and if they do, then the most immediate advantage will redound to Scotland.”¹⁰⁴ Clerk acknowledged that the Union could be harmful to some in the herring industry (most likely a reference to the salt masters), but it would be “a very great national advantage” citing that £100,000 would be spent in Scotland annually on the herring trade and that investing in the herring trade improves the rest of the country.¹⁰⁵ While Clerk had several interests influencing his support for union, one of those was the Scottish herring industry.

Like many others, William Seton, argued that he was supporting union because he believed it was the best decision for “the prosperity and welfare” of his country.¹⁰⁶ While Seton made several points on the advantages of free trade from union, the one resource he provided a more detailed analysis of was fishing, especially herring. He argued that the fishing industry with England’s help would lead to improvements in all areas of Scotland, provide wealth, employ the poor, and create more trade.¹⁰⁷ Seton concluded that Scotland could not better its trade being separate from England, so the only solution was union with England. Seton went on to vote in

¹⁰³ Clerk, *An Essay*, 26.

¹⁰⁴ Clerk, *An Essay*, 25.

¹⁰⁵ Clerk, *An Essay*, 26.

¹⁰⁶ William Seton, *Scotland’s Great Advantages by a Union with England: Showen in a Letter from the Country, to a Member of Parliament* (1706), 1.

¹⁰⁷ Seton, *Scotland’s Great Advantages by a Union with England*, 5, 7, 11.

favor of union and we can see from his argument that herring and trade played a significant role in his thinking.¹⁰⁸

The recovery and potential financial successes of Scottish herring lured those in fishing communities or those with interests in herring fishing, be it Scottish Parliamentary voters, merchants, or fishermen themselves from the Scottish mainland, to support union because union was perceived to be able to provide the necessary funds to help Scottish herring fishing become the larger financial success it was judged to be. The success that the herring trade could provide, especially through a trading company, fits into seventeenth-century ideas of the balance of trade and its relation to power, which utilized trading companies to gain wealth and power. With the mercantilist ideas of the time, Scotland had fallen behind in the European balance of trade and herring, with the financial and naval support of England, provided seemingly endless opportunities to reposition Scotland within this balance. The financial and military support that union offered was the opportunity for some to improve Scotland through the herring trade.

Salt

By the time of the union negotiations (1705-07), Scottish salt interests were not focused on the export of salt to new markets, but on the control of the domestic markets they already possessed, which allowed it to succeed for much of the second half of the seventeenth century after establishing a monopoly in the 1660s.¹⁰⁹ The biggest competition to Scottish salt would have been from English salt and, therefore, Scottish salt interests would not welcome a union and more competition.¹¹⁰ When the Union attempted to end the Scottish salt monopoly and raise

¹⁰⁸ Mr. Seton of Pitmedden addressing the Scottish Parliament, 2 Nov. 1706, in Defoe, *Union*, 336-38.

¹⁰⁹ Whatley, "Salt, Coal and Union," 30.

¹¹⁰ Whatley, *The Scottish Salt Industry*, 87.

taxes on Scottish salt, the interests of salt producers and consumers were united in an effort against higher salt taxes and the Union.¹¹¹

In 1706, when commissioners from Scotland and England discussed the initial terms of union in London, the VIII Article relating to Scottish salt “occasioned the greatest debate” by the Scottish commissioners in London and was an important topic in the negotiations for union.¹¹² Even more telling about the role of salt in Scotland was that the Union commissioners were handpicked by the Queen, the Royal Court, and the English Parliament because they were likely to be more agreeable to the idea of union. It says quite a bit about the importance and influence of the salt industry to Scotland, and the Union, that this was one of their greatest objections and item for debate in the initial union draft. In addition, this was one of the few articles that required multiple days for debate, in both Parliaments.

The compromise the English negotiators offered to the Scottish Parliament, who would later debate these Articles of Union, was that Scottish salt produced and sold within Scotland could receive an exemption for 7 years after the union, so long as there was an agreement in place that some amount of salt tax would be collected after this period.¹¹³ Exported salt and salt used for the preservation of flesh would still be taxed at the English rate, but domestic consumption would be untaxed for the initial 7 years after union. Included in this article was a measure for a portion of the equivalent, at least £40,000, to eventually go to the Scottish salt

¹¹¹ Whatley, “Salt, Coal, and Union,” 38.

¹¹² Daniel Defoe, *A Collection of Original Papers ... Concerning the Union Between England and Scotland. Also a Journal of the Proceedings of the Treaty, as Well at London as in Edinburgh ... In Five Parts ... Collected from the Records and Registers; By a Person Concern'd in the Said Treaty ... [Dedication to the Queen ... Signed Daniel Defoe. Appendix (in 2 pts.) Contains an Account of the Transactions Subsequent to the Union]* (London: E. Curll, [1709] 1711), 165.

¹¹³ Lord Commissioners of England, to the Lord Commissioners of Scotland, 15 May 1706, in Defoe, *Union*, 151.

industry (saltmasters) and the malt industry to help offset some of the possible burdens from new taxes.¹¹⁴ These concessions were enough to obtain the approval of the Scottish negotiators in London, but the topic of Scottish salt still required debate by the Scottish Parliament, and frankly, by all levels of Scottish society.

When the debate over the Articles of Union made it to the Scottish Parliament in 1706, the arguments over the salt trade continued and were more heated than they were in London. Daniel Defoe and the earl of Mar, among many other commentators at the time, all argued that the salt tax was the greatest challenge to union.¹¹⁵ When describing the debate over salt in the VIII Article, Defoe wrote that “great quarrels were raised,” which caused “great arguings.”¹¹⁶ The earl of Mar, who supported the union, wrote to two separate people that “this [the VIII Article on salt] was the article I was most afraid of” and also that “there’s nothing in the treaty Im now so afraid of here, as the salt.”¹¹⁷ Defoe summed up the situation writing that since the struggle over salt had been great in London, so too would it be in Edinburgh, and that salt might indeed break the Union.¹¹⁸ Even with enough votes through party politics to likely pass the Union, Mar argued that the Scottish Parliament still needed to secure “drawbacks for salt, herring, and oats” to be sure it went through.¹¹⁹

During the initial readings of drafts of the Articles of Union, Scottish saltmasters and those involved in the salt industry and salt trade all feared that free trade in salt and coal would,

¹¹⁴ Defoe, *Union*, 96.

¹¹⁵ Defoe, *Union*, 157.

¹¹⁶ Defoe, *Union*, 448, 451.

¹¹⁷ NRS, GD124/15/479, Copy letter to the Earl of Sunderland, Secretary of State for England, from the Earl of Mar, 10 Dec. 1706; Royal Commission on Historical Manuscripts, *Report on the Manuscripts of the Earl of Mar and Kellie*, The Earl of Mar to Sir David Nairne, 17 Dec. 1706, 356.

¹¹⁸ Defoe, *Union*, 449.

¹¹⁹ NRS, GD124/15/449/50, Copy of letter to Nairne from Mar, 3 Nov. 1706.

in time, lead to their destruction.¹²⁰ The most common argument made by the salt industry, and then picked up on by many anti-union parliamentarians and Scottish pamphleteers was that a tax on Scottish salt would disproportionately harm the poor, since, it was argued that, they ate more salted goods than any other portion of the population in Scotland.¹²¹ For instance, the Duke of Athol protested the salt taxes claiming that salt was the most useful of all “victual” and that any tax was a grievous burden, especially for the poor.¹²² Defoe posited that the idea of an extra tax on salt terrified the large number of poorer Scots and many were led to believe that salt, malt, beer, and fish “would be loaded with insupportable taxes and their whole trade should be ruined their houses plunder’d for taxes and their people starv’d.”¹²³ In fact, one persuasive argument made by anti-unionists was that if union passed, Scots would have to eat their porridge without salt because salt would become too expensive with union taxes. Concerns for the lower classes of Scottish society had been relatively absent from the Union discussions, outside of general references to the poor state of the country. Salt was one of a few times where the voice of the lower classes was utilized by members of the Scottish Parliament to help make their own points.

Anti-union members of the Scottish Parliament thought union might fall through because of salt taxes and utilized these arguments on salt taxes. They wanted to make Scotland exempt from new taxes believing that England would refuse, which would cause outrage from the Scottish population.¹²⁴ For the opponents of the salt tax and not just those opposed to union, 7 years without tax was not long enough, and a salt tax would still be too burdensome even after 7 years. This occasioned “a great many speeches on this [7 years or not] subject,” and created

¹²⁰ Whatley, “Salt, Coal, and Union,” 26.

¹²¹ Defoe, *Union*, 166.

¹²² Records of the Parliament of Scotland, Minute XLIV, 24 Dec. 1706, in Defoe, *Union*, 450.

¹²³ Defoe, *Union*, 245, 308, 318.

¹²⁴ Whatley, *The Scottish Salt Industry*, 1.

many “harsh” words, which Defoe claimed he did not wish to publish in his account of the Union and show people “out of temper.”¹²⁵

Despite the objections of some in the salt industry and the general opponents of the Union, after several days of debate, a common ground emerged between the supporters of union and a portion of the Scottish saltmasters. Although all parties agreed that the exemption on Scottish salt would last 7 years, the compromise was that after 7 years, Scots would only pay 12 pence per bushel, instead of the common 2 schillings and 4 pence per bushel, because, it was argued that the 12 pence tax was unlikely to be passed onto poorer consumers.¹²⁶ Although it received enough votes for approval from the Scottish Parliament, this solution only satisfied some in the salt industry. Table 8.2 displays those opposed to the VIII Article even after the Scottish Parliament reached a compromise on the salt trade. Some of those listed in the table opposed this article because they opposed the Union in general, however, there were others that opposed it simply because they still found it damaging to the salt industry.

Table 8.2 lists the petitioners against the VIII Article of Union compared with those who voted in the final vote on the decision for union. The list on the left is of those who voted against union, while the list on the right abstained from the final vote. The overwhelming majority of those from the petition of the VIII Article who voted in the final union vote, voted against a union. While this does not represent all who were involved in the salt trade and not all of those who petitioned the VIII Article of Union were against it simply because of their interests in the salt trade, however, there is some correlation between interests in Scottish salt, and voting decisions on the union. A closer look at some members of the Scottish Parliament and Scottish

¹²⁵ Defoe, *Union*, 452.

¹²⁶ Defoe, *Union*, 452.

communities involved in the final union vote can illustrate more of the divisiveness that Scottish salt had with the Union voting.

The final vote for union shows the divide within the salt industry and those who had ties to it. Although many would have initially been against a union, after the VIII and XII Articles protected the Scottish markets, at least for some time, some Scottish saltmasters, like the earl of Mar and William Morison of Prestongrange, were able to vote in favor of union. The result is a mix of the votes of the salt masters between those that thought the articles protected their trade and those who still did not and wanted there never to be a tax on Scottish salt. In the final union vote in the Scottish Parliament (16 Jan. 1707), we see some of this played out. For saltmasters and families in the salt trade there was some divide over how the union would shape their trade. Some, like William Johnstone, 1st marquess of Annandale, listed above with those opposing the Union and the VIII Article, found the taxes from the Union intolerable. Annandale and their family had not paid salt duties (production or trade taxes) after 1671, so any new tax brought about by union would hurt their business mightily.¹²⁷ It is not surprising then that William Johnstone voted no for union. Some with interests in the salt trade such as William Morrison of Prestongrange, who had salt works along the Firth, voted in favor of union.

¹²⁷ Whatley, *The Scottish Salt Industry*, 10.

Table 8.2 List of Those Opposing VIII Article of Union (Salt Tax) 24 Dec. 1706. Denotes those that voted no in final vote on union and those that abstained from final vote

Those who opposed VIII Article of Union and voted No on final Union vote	Those who opposed VIII Article of Union but abstained from final Union vote
Duke of Hamilton	James Ogilvie, younger of Boyn
Earl of Wigtoun	James Graham of Bucklyvie
Viscount of Kilsyth	John Black
Lord Bargany	George Lockhart of Carnwath
Andrew Fletcher of Saltoun	Sir Patrick Murray of Auchteryre
Mr. William Cochran of Kilmarnock	Alexander Watson
Mr. Thomas Hope of Rankellor	Earl of Selkirk
Alexander Mackgie of Palgown	
Marquis of Annandale	
Earl of Errol	
Earl of Marischal	
Earl of Caithness	
Earl of Galloway	
Lord Olpivant	
Lord Balmerino	
Viscount of Stormount	
Lord Saltoun	
Lord Colvil	
Lord Kinnaird	
Lord Blantyre	
Lord Beilhaven	
John Murray of Strowan	
Mr. Alexander Ferguson of Isle	
Robert Scot	
Sir Robert Sinclair of Longformacus	
John Sinclair, younger of Stevenson	
Archibald Skeills	
John Brisbane, younger of Bishoptoun	
Mr. Robert Frazer	
Robert Rollo of Powhouse	
David Grahame, younger of Fintrie	
Mr. James Carnagie of Phingaven	
Mr. Patrick Lyon of Auchtershouse	
Mr. John Lyon	
Sir David Cunnunghame	
Francis Molison	
Mr. George Mackenzie of Inchoulter	
Alexander Robinson	
Robert Kellie	
George Home	
Alexander Edgar	

Source: Records of Parliament of Scotland, Minute XLIV, 24, Dec. 1706, in Defoe, *Union*, 450.

Even at the parish level we see voting patterns spilt. During the early part of the debates of the VIII Article, the Scottish Parliament read a petition of the Union by the parishes of Maybell [Maybole], Kirkmichael, Girvan, Kirkoswald, Barr, and Carrick, all located within Ayrshire and Galloway and involved in Scottish salt trade.¹²⁹ The votes from Ayrshire were split 2 to 2 over union and the earl of Galloway voted against union. While there were multiple issues in play within these communities, such as religion and even the Scottish wool industry, Scottish salt was also one of the factors involved in determining votes for union.

Despite the VIII Article, one group of Saltmasters and fishermen were still torn over the union itself because while it offered help to Scottish fishing “there [being] no treasure so much discovered and yet neglected, as the fishing belonging to this kingdom,” it also created “great hardship and inequality” for other fishermen like cod or whitefish fishermen who relied upon Scots salt to make their fish taste sweeter.¹³⁰ Alexander Duff, a member of the Scottish Parliament, best represented fishermen possibly suffering from the new bounty and salt system. Duff’s interests in cod fishing and salt would have both suffered because of union, since Scottish salt was thought to better preserve cod than English salt and Duff would be barred from utilizing it after a union.¹³¹ In fact, a fake writing of the feelings of highlanders against union, *Te Address far te Fishers on te Highland Coasts* (1706) claimed union was detrimental to the salt and fishing industry in western Scotland because the taxes that union imposed upon salt would have ruined the fishing trade in the highlands for those that caught cod or did not export herring.¹³² When

¹²⁹ Records of the Parliament of Scotland, Minute XLIV, 24 Dec. 17006, in Defoe, *Union*, 449.

¹³⁰ NLS, *Remarks for the Salt-masters, Fishers of Salmond [sic], Herrings and White-fish, and Others Who Make use of Scots Salt, Humbly Offered Upon Eighth Article of the Treaty of Union*.

¹³¹ NRS, GD124/15/462/6, Letter to the Earl of Godolphin, Lord Treasurer of England, from the Earl of Mar, in Edinburgh, 26 Oct. 1706.

¹³² *Ta Hir Grace Her Majesties high Commissioner, an te Honorable Estates of Parlment; Te address far te fishers on te Highland coasts, an all uthers inhapiting te Highlands, wha it ma*

losing his preferred salt for fish preservation was added to Duff losing out from the monopoly ending in the Scottish salt trade, it is easy to see why he voted against union.¹³³

Coal and Union

By the time of the 1706 union debates, Scottish coal had been struggling and the coal that was most easily accessible appeared to be running out. In the first draft of union, taxes on Scottish coal were to be the same rate as English coal, which conflicted with the interests of Scottish coalmasters. Because of their struggles, Scottish coalmasters perceived any act that would add to their tax burden or increase their operational expenses as damaging to the Scottish coal industry. Their initial votes would likely have been against union as Scottish coalmasters frequently argued against any increase in their tax burden. For instance, in the late seventeenth century, we see in an account of the salt and coal industries along the Firth from the papers of the Sinclair family and the earls of Rosslyn, an unnamed author petitioning against an increase in taxes. The author claimed that the costs of coal production in the Firth region were high and an additional tax would leave the people working in those industries poor and beggars. The author claimed that the effect of this tax would be far reaching, affecting those in shipping and seamen as well and it would be “a great detriment to the nation.”¹³⁴

The influence of the coalmasters responding to the perceived effects of increased taxes helped push the Scottish Parliament to amend the VI and XII Articles of Union to protect Scottish coal from duties until 1710. After the Union, Scottish coalmasters successfully appealed

concern, humbly representing tat it will pe exceedingly disadvantageous to Her nane sel, tat te Articles of te Union concerning salt, and excise pe agreed to, without an mendment in case the union is concluded (Edinburgh, 1706).

¹³³ NRS, GD124/21/62/1, Papers concerning the town of Banff, particularly the fishings of the town in the River Deveron and in the sea, 15 Jun. 1699.

¹³⁴ NRS, GD164/508, Reasons to be given in against the valuation of coal and salt works being casual rents, [Late 17th Century].

this decision, obtaining an extension and further protecting their coal trade.¹³⁵ At the time of the vote on union, Scottish coal, consumed in Scotland, received an exemption from taxes for 3 years after the Union. For Scottish coalmasters, this was a victory since most of their coal production stayed within Scotland going to markets in Edinburgh, Fife, and the salt industry. We can see some of this played out in the voting patterns of Scottish coalmasters.

In *A History of the Scottish Coal Industry* (1970), Baron Duckham listed several of the larger coalmasters, or coal owning families in Scotland. This included the Cunningham family near Saltcoats, the earls of Wemyss, the earls of Leven, and the Erskines of Mar. These families included 5 representatives to the Scottish Parliament in the final vote on union. All 5 of these representatives voted in favor of the Union. Duckham also included the earls of Rothes who owned coal mines on the Leslie estate in Fife. John Hamilton, Leslie, 9th earl of Rothes, voted yes for a union, although, like Mar, he later became a Jacobite.¹³⁶ There was also John Clerk of Pennycuik (Penicuik) whose family was involved in Scottish coal. Clerk often worried about carrying on this work since it produced so little for the large amount of effort required, and he too voted in favor of union.¹³⁷ Duckham also listed Robert Cunninghame as an important supporter of Scottish coal. Although Cunninghame was not a member of the Scottish Parliament, he was an important member of the merchant class who owned coal mines and was an advocate for their improvement.¹³⁸ Given that he had spent large sums and many years draining lands to mine coal and built a dock to ship coal, it is highly likely that Cunninghame, and other merchants

¹³⁵ Whatley, "Coal, Salt, and Union," 41.

¹³⁶ Baron Frederick Duckham, *A History of the Scottish Coal Industry* (Newton Abbot: David & Charles, 1970), 145.

¹³⁷ Duckham, *A History of the Scottish Coal Industry*, 152.

¹³⁸ Duckham, *A History of the Scottish Coal Industry*, 156.

like him who had invested in infrastructural improvements in coal, would have been important supporters of a union with coal protections.¹³⁹

Another example comes from Peter Halkett of Pitferrane, a coalmaster who had a significant interest in Scottish coal. As his coal was of poorer quality than much of English coal, and, therefore, sold in Scotland to salt pits and exported to Ireland, Halkett was originally concerned with the Articles of Union as they dealt with Scottish coal. However, once the VI and XII Articles of Union were amended to protect Scottish coal, and the VI Article specifically allowed for Pitferrane coal to be exempt from export taxes, Halkett's needs were met and he voted in favor of union.¹⁴⁰ From the examples of Peter Halkett, Scottish coal, and Scottish salt, we begin to see that owners of resources which had often struggled from environmental changes of the late seventeenth century vote in favor of union, especially when it offered them concessions or protections.

The Table 8.3 lists some of the known families involved in the Scottish coal industry with membership in Parliament at the time of the Union vote. This example includes those that Duckham listed as major coal owning families and others found within the archives of the National Records of Scotland. This table demonstrates just how significant the amendments to the VI and XII Articles of Union were to Scottish coal and coalmasters as each of these representatives with ties to Scottish coal voted in favor of union. This does not mean that everyone within a single family voted the same. While John Erskine, 22nd earl of Mar, who had interest in the Scottish coal industry voted in favor of union, David Erskine, 9th earl of Buchan

¹³⁹ Eric J. Graham, *Robert Reid Cunninghame of Seabank House: Entrepreneur and Life-time Manager of the Stevenson Coal Company 1770-1814* (Ayr: Ayrshire Archaeological & Natural History Society, 1997).

¹⁴⁰ Whatley, "Salt, Coal, and Union," 33; Whatley, *The Scottish Salt Industry*, 65.

voted against it. Although several factors likely influenced each representatives' decisions in voting for union, one factor for those listed in the table above must also have included their interests in Scottish coal.

Table 8.3 Scottish Coal Interests and Union Voting Patterns

Sir Robert Cunningham (Saltcoats)	Yes
David Wemyss, 4 th Earl of Wemyss	Yes
Sir Peter Halket(t) (Dunfermline)	Yes
David Leslie 3 rd Earl of Leven	Yes
John Hamilton Leslie, 9 th Earl of Rothes	Yes
John Erskine, 22 nd Earl of Mar	Yes
John Clerk, Pennycuik (Penicuik)	Yes

While the earl of Mar had several motivations for desiring union: he interacted with the Royal Court, was appointed to high positions in the government, was a Scottish commissioner for the Union, and was aligned with the Court Party, he also had connections with Scottish coal. In fact, he seems to have had trouble selling some of this coal by 1705 and would have benefited from having a larger market to sell his coal, and protections offered by the Union since in Scotland “there is no money to be got in this country and I get no coals sold.”¹⁴¹ The protections offered to the coal industry in the VI Article of Union helped sway many of the coalmasters, like Mar, to union.

Oats and Cattle

Chapter five provided more extensive detail of Scottish agricultural production, and while it had failed on a large scale during the late 1690s, by the time of the Union, it had mostly recovered nationally. Nonetheless, several grain producing areas in the country still struggled to recover and protections offered to their grains could have swayed their support. In the Union

¹⁴¹ NRS, GD45/14/320, Letters from the Earl of Mar concerning private affairs and his doings in exile 1695-1718.

debates, initially, there were some objections to the taxes on and export of oats. In part because oats and oatmeal were “the grain of the generality of this nation.”¹⁴² In addition, the English system paid a bounty for the export of their grains, mainly wheat and English barely, but this did not include oats. If some protection was offered to oats, the Earl of Mar posited that “it is hardly to be imagined” that Scotland’s oat trade would not increase after the Union, as Scottish oatmeal would “be one of the commoditys wch will be most exported from this country to the West Indies after the union.”¹⁴³

The VI Article of Union offered protections to oats, where if the price of oats fell below “fifteen shillings sterling per quarter or under, there shall be payed two shillings and six pence sterling for every quarter of the oat meall exported in the terms of the law.” Oat production received further protections since oats became banned from importation into Scotland from any foreign port. In addition, the VI Article applied the same protections offered to English barley to Scottish bear or barley. While this likely played into some of the voting of the larger Scottish landowners, few mentioned this in their discussions of the Union. Several grain traders though likely benefitted immensely from the export protections, such as David Carnegie, 4th Earl of Northesk. Carnegie, who voted in favor of union, was heavily involved in the Scottish grain and oat trade, and was likely influenced by the protections union offered the oat trade, particularly since he mentioned the great risks he took shipping grains over water.¹⁴⁴ James Dunbar also

¹⁴² NRS, GD124/15/449/50, Copy of letter to Nairne from Mar, 3 Nov. 1706.

¹⁴³ NRS, GD124/15/462/6, Letter to the Earl of Godolphin, Lord Treasurer of England, from the Earl of Mar, in Edinburgh, 26 Oct. 1706.

¹⁴⁴ NRS, RH15/56/8, Legal papers 1688-1709.

voted for union and his family was involved in Scottish trade, particularly in grains, like oats, as well as building materials.¹⁴⁵

The Union of Crowns in 1603 provided an opportunity for the development of the Scottish cattle (cows) trade with England, especially during the second part of the century. Through many parts of southern and western Scotland, Scottish cattle were driven or shipped into England.¹⁴⁶ Although Irish cattle were perceived to be the best within the British Isles, and there were several attempts to interbreed these with Scottish black cattle despite a ban on their importation into Scotland, by the end of the century, the Scottish cattle trade with England was one of Scotland's largest exports.¹⁴⁷

The Scottish port books identified the western ports of Dumfries, Alisonbank, and Castleton as major cattle export areas by the beginning of the 1690s. With Dumfries exporting thousands (estimates range between 1,000-6,500) of cattle per year into England and the three ports accounting for 92% of the legal cattle exports. Scottish border towns, like Jedburgh and Kelso contributed the rest.¹⁴⁸ Between 1660-1691 the Scottish cattle trade remained relatively stable in terms of total numbers of cattle exported, barring some exceptions during famine years, with around 20,000 head a year exported out of Scotland through 1691.¹⁴⁹ After 1691, and for several years prior to it, Scottish cattle export records are plagued by multiple year gaps, and to

¹⁴⁵ NRS, GD128/70/9, Papers of James Dunbar, merchant and bailie of Inverness; NRS, GD128/70/10, Papers of Alexander and James Dunbar, 1665-1701.

¹⁴⁶ NRS, GD406/1/5217, 'Philopatris' to the duke of Hamilton, 1703; Alexander-John Koufopoulos, "Cattle Trades of Scotland, 1603-1745," PhD diss., The University of Edinburgh, 2014, iii.

¹⁴⁷ Defoe, *Union*, 446.

¹⁴⁸ Koufopoulos, "Cattle Trades of Scotland," 131; D. Woodward, "A comparative study of the Irish and Scottish livestock trades in the seventeenth century," in eds. L. M. Cullen and T. C. Smout, *Comparative Aspects of Scottish and Irish Economic and Social History, 1600-1900* (Edinburgh: Donald, 1977), 147- 164.

¹⁴⁹ Koufopoulos, "Cattle Trades of Scotland," 135-36, 178.

better understand the number of Scottish cattle exported prior to the Union, we must turn to the English customs records.

Although the English export records include significant gaps as well, they paint a similar picture to Scottish records of Scottish cattle exports up to the Union. Table 8.4 lists the number and value of Scottish cattle exported into England from 1697-1703. The records possibly identify some hardships during the Ill Years of the 1690s with 1697 seeing a significant increase in exports, perhaps because of a lack of fodder, and 1698 with no exports, though both cases could also signify errors or gaps in data. Documentary accounts corroborate some of this data, identifying hardships during some of the Ill Years for Scottish cattle producers. Nevertheless, the general trend during the period up to the Union was one of significant exports, with cattle consistently ranked as Scotland's first or second largest export in value (along with linen), usually occupying between 20-50% of all exports.

Table 8.4 Scottish Cattle Exports to England

	Number of Cattle Exported	Value £ Sterling	Nominal price in £ Sterling
1697	59,701	59,701	1
1698			
1699	18,132	33,997	1.87
1700	39,261	68,706	1.74
1701	13,389	24,218	1.81
1702	11,314	19,799	1.75
1703	14,767	25,842	1.74

Source: NRS, RH4/157, English Customs Records.

Although the Union debates did not mention the Scottish cattle trade as frequently as the woolen, linen, or herring trade, it was still an important aspect of Scottish trade that contemporaries thought would benefit from union. In fact, one major argument was that the Scottish cattle trade (along with linen) would collapse if a failed union resulted in a closed

English border.¹⁵⁰ Francis Grant's *The Patriot Resolved* (1707) staunchly supported union, after previous attempts to improve Scottish trade had failed.¹⁵¹ Perhaps more intriguing was Grant's reason why union would benefit both countries. He claimed that England needed Scottish black cattle to eat English undergrowth, and would do so into perpetuity, because, Grant posited, Irish cattle that were brought up with good pasture would not touch undergrowth.¹⁵² So Scotland's cattle seemingly fit a necessary niche in the English land management system, or so Grant argued. Few pamphleteers took on such a distinct argument as Grant, but most agreed that union would benefit the cattle trade.

While the proposed Alien Act of 1705, which would have closed the border between Scotland and England, raised the suspicion and fears of all those connected with the Scottish cattle trade, the VIth Article of Union sought to allay those fears. In fact, a union seemingly helped promote the Scottish cattle trade by removing duties on Scottish cattle crossing into England. Like many of the pamphleteers suggested, this provided a greater opportunity for Scottish cattle exports to vastly increase. This is suggested by union voting where Scottish border representatives voted in favor of union, though few stated outright that this was because of cattle. Voting interests became more complicated in western Scotland in regions like Galloway where Scottish wool and cattle both occupied large areas and union was perceived to affect each industry differently.

¹⁵⁰ John Spottiswoode, *The trimmer: or, some necessary cautions, concerning the union of the kingdoms of Scotland and England; with an answer to some of the chief objections against an incorporating union* (Edinburgh, 1706), 3.

¹⁵¹ Francis Grant, *The Patriot Resolved, in a Letter to an Addresser, from his Friend; of the Same Sentiments with Himself; Concerning the Union* (1707), 6.

¹⁵² Grant, *The Patriot Resolved*, 23.

Wool

While many of the discussions over Scotland's natural resources during union negotiations required significant debate, perhaps none was more contentious prior to the union debates as the exportation of wool, and the woolen industry in general. Much of this debate centered upon the limited market for unrefined Scottish wool. The Scottish woolen industry was subpar at best, especially when compared to its English and Irish neighbors. English wool was a much higher quality and finer product that had a larger demand in Europe, however, Scottish wool could be made into lower quality woolen products.¹⁵³ In fact, by the end of the seventeenth century, it was mostly English wool and products made from English wool by Scottish manufacturers that produced the export market of wool from Scotland.¹⁵⁴ This was even more striking since it was illegal for English merchants to export wool to Scotland. Nevertheless, because of its quality, this illicit trade was an extremely lucrative market. Given the value of English wool, Scottish commentators argued that some form of trade with England was essential because it would benefit wool manufactories to obtain the higher quality English wool.¹⁵⁵ Others, circumvented the law as Gilbert Robertson, an Edinburgh merchant, denoted in his record books several trips he made exporting cloth and English wool during the 1690s to major ports along the North Sea.¹⁵⁶ Robertson was by no means alone in this activity as several extant records provide evidence of this illicit and lucrative trade in wool. For instance, in 1701 charges were brought

¹⁵³ The major argument being that English wool was cleaner than Scottish wool (without debris or tar). While this may seem like a minor argument, if you have ever worked with wool you realize the significance of this small distinction. For more on development of English woolen industry see DeVries, *Europe in an Age of Crisis*, 101-04.

¹⁵⁴ Smout, *Scottish Trade*, 215.

¹⁵⁵ Fletcher, *Scotland's Interest*, 5.

¹⁵⁶ NRS, CS96/1726, Gilbert Robertson, merchant, Edinburgh. Letter book 1690-1694.

against Alexander Findlay, skipper in Montrose, Harry Scott, John Tayler, William Findlay, Robert Allan, and John Pedie, seamen, for shipping wool and woolen products.¹⁵⁷

The Scottish Parliament, at least on paper, had strict control of the woolen and even linen industry. Its legislation limited who could produce woolen or linen products and set the dimensions for the exports of linen and wool cloth.¹⁵⁸ This also applied to the raw materials, especially wool. Even as late as 1703, several declarations by the Scottish Parliament reinforced previous laws that Irish and English wool should not be exported from Scotland; although these seemingly ignored how the wool arrived in Scotland, since it was illegal to export wool from England or Ireland into Scotland.¹⁵⁹ The Scottish Parliament had declared that preventing the export of wool would “increase the wealth and riches of this kingdom and encourage the manufactories already set up or that shall happen hereafter.”¹⁶⁰ Yet, this was not strictly followed as William Cochran, who spoke on behalf of several wool manufactories in Edinburgh, Glasgow, and Aberdeen, attested through frequent petitions to the Scottish Parliament in the early eighteenth century. Cochran regularly sought the protection of the Scottish Parliament to better enforce laws prohibiting importation of foreign wool and woolen products. He provided one example of how merchants alluded this ban, describing how they declared that they were sailing

¹⁵⁷ NRS, GD49/508, Execution by William Wallace, macer to the High Court of Admiralty, 2 Feb. 1701.

¹⁵⁸ NRS, PA7/17/1/95, Printed Draft Act for measuring and sealing linen and woollen cloth etc., 31 Jan. 1701; NRS, PA7/18/1/19, Overture or Draft of an Act for measuring and sealing of linen and woollen cloth.

¹⁵⁹ NRS, PA7/18, 81, Printed Overtures for the Act continuing the prohibition of exporting English or Irish wool; NRS, PA7/18/67; PA7/18/80(1-5), MS and printed draft of the Act discharging the importation of Irish victual and 3 draft clauses.

¹⁶⁰ NRS, PA7/18/81, Printed Overtures for the Act continuing the prohibition of exporting English or Irish wool; See also NRS, PA7/18/67; NRS, PA7/18/80(1-5), MS and printed draft of the Act discharging the importation of Irish victual and 3 draft clauses.

to another Scottish port with the wool, but instead traveled to a port outside of Scotland to export the raw wool.¹⁶¹

In numerous pamphlets prior to union negotiations, the wool industry became one way that Scotland could improve its domestic trade. William Seton of Pitmedden (voted yes for union) argued that wool was one of the “chief branches” of Scottish industry and that Scotland needed to import more sheep if it ever wanted to be taken seriously in the woolen industry.¹⁶² Even then, Seton was aware that Scottish wool would still be of lesser quality than English or Irish wool because of what he claimed were the poor Scottish soils, which had more to do with the organic materials often stuck in Scottish wool. For Seton, the Scottish woolen industry needed to be realistic and acknowledge their lesser product, however, there was still a large export market for lower quality woolen products.¹⁶³ Because of arguments like Seton’s, there were several attempts to develop a more pronounced Scottish woolen manufactory system, and some of the better thought out petitions to set up woolen factories appeared in 1696 at Newmill, 1698 at Musselburgh, and in 1703 at Harcarse (Berwickshire).¹⁶⁴ James Lyel petitioned the Scottish Parliament in 1704 to set up a wool factory on his estate in Angus, which he claimed would operate in a similar fashion to the more well established factories at Aberdeen.¹⁶⁵ Several

¹⁶¹ NRS, PA7/18, 27 (1-2), MS and printed Copy Petition of Wm Cochran of Ochiltree and other delegates of the wool and silk manufactories in Edinburgh, Glasgow and Aberdeen; NRS, PA7/33, Petition of Wm Cochran of Ochiltrie, John Hay and others as representing the Society of Manufactories, regarding frauds perpetrated in exporting wool, and against Andrew Crawford, surveyor of customs at Bo'ness.

¹⁶² Seton, *Some Thoughts on Ways and Means*, 19.

¹⁶³ Seton, *Some Thoughts on Ways and Means*, 29, 33.

¹⁶⁴ NRS, PA7/15 104, Petition of the Managers of the woollen manufactory at Newmills; NRS, PA7/16/76, Petition of Gilbert Robertstone of Whythouse for erection of a woollen manufactory; NRS, PA7/18/62, Copy or Draft Act in favour of Wm Hog of Harcarse for a woollen manufactory there.

¹⁶⁵ NRS, PA7/18, 25 (1-2), Petition of James Lyel of Gardin for erection of a woollen manufactory.

other efforts to set up woolen manufactories continued on up through the negotiations for a union.¹⁶⁶

The idea of creating a successful Scottish woolen industry created a fierce debate over the exportation of Scottish wool in the Scottish Parliament during the 1704 session. In a 1704 pamphlet, *A letter to a Member of Parliament, Concerning Manufacture and Trade*, the author decried the exportation of raw wool because manufactured wool products had a much higher commercial value than raw wool. Yet even this pamphlet was describing non-Scottish wool, arguing that that Scottish manufactured woolen goods had English and Spanish origins, which left Scottish wool rotting. Their resolution was for more encouragement of factories to produce these woolen goods, which would increase demand, and this would develop a market of Scottish woolen products, or if nothing else, the Scottish wool would be mixed into the higher quality wool.¹⁶⁷

In a separate pamphlet, *A letter from a merchant to a countrey [sic] gentleman; touching matters of trade*, the author described the current poor state of the Scottish economy and posited that the export of wool was one of the causes. Given time, and with the encouragement of manufactories, it would provide much wealth to Scotland and subsequent industries.¹⁶⁸ William Cochran and John Alexander again petitioned the Scottish Parliament in 1704 to prohibit the export of wool. They claimed that the only way to end the poor Scottish economic state was to focus on manufactories, like wool. They posited that by banning the export of wool and the

¹⁶⁶ NRS, E20/66, Copies and extracts of commissions and other documents Apr. 1695-Feb. 1707: Act of lords of treasury and exchequer in favour of manufactory for making wool and tow cards, 12 Mar. 1705

¹⁶⁷ NLS, 1.275(28), *A letter to a Member of Parliament, concerning manufacture and trade*, 1704, 4, 7, 8.

¹⁶⁸ NLS, 1.44(5), *A letter from a merchant to a countrey [sic] gentleman; touching matters of trade*, 4.

importation of foreign made wool clothing (and wool), the country could slowly begin to recover since this would produce more trade in Scottish woolen products, which could then produce jobs for the large numbers of poor in Scotland. Part of their justification for this was that “the Spainiards who are naturally lasie [lazy]” even make their own wool products, so Scotland should do the same. Their driving point was that if the exports of wool in Scotland continued--notice they did not say Scottish wool--there would not be enough wool to meet their future needs.¹⁶⁹

For the pro-exportation of wool side, we can examine *Reasons Against Continuing the Act Allowing the Exportation of Wool*, (1701). It stated that “money is also scarce, yea more scarce than ever,” but exporting wool would not ruin Scotland financially since there was a great abundance of wool “rotting” at the ports because it currently went unused. The author claimed that by allowing the importation of English wool into Scotland, it flooded the market, and Scotland needed to sell off the extra wool, or as the author also argued, close its border to English wool coming in. For instance, they noted the previous success of Galloway wool exports, but by 1701 Galloway struggled because a flooded wool market ruined that trade. They claimed that in northern Scotland there was so much excess wool that markets could only sell one-tenth of it. Furthermore, even if Scotland increased its production of wool products, it was unlikely to do well because other countries could make the same products as Scotland would produce. The piece ended with a dire warning to readers and the Scottish Parliament that if wool

¹⁶⁹ NRS, PA7/19, 52 (1-8), Draft Act prohibiting the export of wool and petitions, overtures and other papers relating thereto and the prohibition of the importation and wearing of silk, 2-5.

exportation continued, “before the end of two years, we will find the sad and dismal effects” of the collapse of any wool market and it would be too late to do anything about it.¹⁷⁰

The 1704 Scottish Parliamentary wool export debate sets up the two sides for the Union debates where the wool exporters supported anything that promoted the manufacture of wool, and the wool producers (sheep farmers) supported anything that would have protected their craft. The outcome of this debate in the 1704 session of the Scottish Parliament permitted wool exports. Nonetheless, allowing the exportation of wool did not solve every problem as Scottish wool still went unsold in several locations in 1705.¹⁷¹ Because of this, the debate over Scottish wool flowed into the union negotiations (1705-07) and much of this was carried on in pamphlets and in the Scottish Parliament.

This was yet another opportunity for Daniel Defoe. Defoe published several pamphlets in 1706 and 1707 in support of union, and, in many cases, these pamphlets also targeted those in the woolen and linen industries. He frequently argued that the woolen and linen trade would both benefit from union, in part because union meant less duties. In addition, Scottish woolen manufactories could make better quality wool products with (legal) access to English wool.¹⁷² In Defoe’s 1706 *Letter Concerning Trade From Several Scots Gentlemen that are Merchants in England*, he explicitly attempted to entice woolen merchants to support union claiming that a free port for Irish wool into Scotland would be created after union.¹⁷³ His *A Fifth Essay at Removing National Prejudices* (1707) was one last effort to demonstrate what trading options Scotland had without union, and wool and linen again held an important role. Defoe discussed

¹⁷⁰ NRS, PA7/17/1/88, Papers relating to the Act discharging the export of wool, *Reasons Against Continuing the Act Allowing the Exportation of Wool*, 31 Jan. 1701.

¹⁷¹ NRS, GD406/1/5320, [David Crawford], Hamilton, to [the duke of Hamilton], 30 Jul. 1705.

¹⁷² Defoe, *A Letter from Mr. Reason*, 2-3.

¹⁷³ Defoe, *A Letter Concerning Trade*, 6.

the current poor conditions of Scottish trade and wanted his audience to think of how bad it could get if England closed its borders and fully pursued preventing wool exports to Scotland.¹⁷⁴ He focused on the poor quality of Scottish wool, which he posited that France would not take, except that which had been smuggled out of England.¹⁷⁵

Even with their frequent disagreements, William Black's *Essay Upon Industry and Trade* (1706), aligned with Defoe's arguments for wool. Black utilized England's wool production as a system that Scotland should model and argued that the exportation of raw wool was damaging to the entire country because although it may benefit some wool producers initially, in the long term they were hurting themselves since manufactured wool products were worth more than three times that for raw wool.¹⁷⁶ This aligns very closely with the mercantile ideas of the time. So, while Black did not argue that union would be beneficial, he clearly saw value in the English woolen system, which, through union, Scotland could have access to or mirror.

There was also frequent pamphlet opposition to the Union that utilized wool. George Mackenzie, the earl of Cromartie, in *A Letter from Mr. Scrupulous, to Trialogus Concerning the Union* (1706) utilized the woolen industry to attack the Union as it stood prior to the XV Article's passing. Mackenzie claimed that union would likely hurt Scottish wool production because a joint parliament, made up of more English members would likely only have English interests in mind.¹⁷⁷ Even William Black who had acknowledged the benefit of the English system, saw the Union hurting the Scottish woolen industry, largely through increased

¹⁷⁴ Defoe, *A Fifth Essay*, 9-10.

¹⁷⁵ Defoe, *A Fifth Essay*, 12.

¹⁷⁶ Black, *Essay Upon Industry and Trade*, 5-9.

¹⁷⁷ George Mackenzie, *A Letter from Mr. Scrupulous, to Trialogus Concerning the Union* (Edinburgh, 1706), 3.

competition.¹⁷⁸ Because of this, Black argued that the woolen industry should receive some encouragement after union. The 1706 printing of George Ridpath's *Discourse Upon the Union of Scotland and England*, and Francis Grant's 1707 pamphlet *The Patriot Resolved*, spoke more clearly on what this would look like; access to the plantation markets, especially the West Indies and a more British Atlantic economy.¹⁷⁹ These arguments help denote some of the reasons why those involved in the woolen industry could support union once offered this encouragement in the VI and XV Article, especially those manufacturing wool.

The debates between pamphleteers continued in the Scottish Parliament during the Union negotiations as the VI Article of Union saw extensive debates over Scotland's natural products. While wool and linen did not make it in to the VI Article (they were part of Article XV), they took part in the buildup of the VI Article's passing. In the debates over the VI Article of Union a Scottish Parliamentary committee investigated what Scottish goods England imported and how union might affect their industries. For wool, the committee found that the Scottish woolen industry would likely suffer from union, at least early on. Their solution was that Scotland should receive a duty-free period for exporting wool, along with linen. Most importantly the committee stated that Scottish "tarred wool," or wool produced in Scotland, should receive encouragement for a period of 7 years after the Union. They explicitly addressed the shires of Roxburgh (3/4 voted yes), Selkirk (3/4 voted yes), and Tweeddale (Hay of Tweeddale voted yes), as the areas of "tarred wool."¹⁸⁰ This suggestion later appeared in the XV Article of Union, where "£2,000 sterling per annum for the space of seven years shall be applied towards

¹⁷⁸ Black, *Some Overtures and Cautions in Relation to Trade*, 4, 11.

¹⁷⁹ George Ridpath, *Discourse upon the Union of Scotland and England* (1706), 153; Francis Grant, *The Patriot Resolved, in a Letter to an Addresser, From his Friend; of the Same Sentiments with Himself; Concerning the Union* (1707), 2.

¹⁸⁰ Records of the Parliament of Scotland, 11-12 Dec. 1706; Defoe, *Union*, 426.

encouraging and promoting the manufacture of coarse wool within these shires which produce the wool.”¹⁸¹

With accounts from the early eighteenth century describing the “decay of the woolen manufacture” in the “northern shires” and Galloway, it is easy to see why the wool industry perceived this encouragement of Scottish wool production as beneficial. This played into wool manufactures as well with Aberdeen reportedly exporting 400,000 ells of wool in 1674, but during the famine and dearth of the 1690s, and even on into 1700, it only averaged 80,000 ells per year. It slowly began to recover by 1702 when it produced 200,000 ells. Nevertheless, production had declined in the years before the Union negotiations, which put the woolen industry on the minds of many like those in Glasgow, Musselburgh, Aberdeen, and Newmill.¹⁸² Though likely a fictitious group, the “peer shank workers and fingreen spinners of Aberdeen, and places thereabout” supported union because, it meant increased profits since they would be selling more linen, cloth, and wool, and at higher prices. From the manufacturing perspective the access to English wool was a bonus, because they could turn the better-quality English wool into valuable manufactured goods.¹⁸³

Even with the XV Article, there was still some uncertainty with wool producers. For instance, Christopher Smout has argued that sheep farms in the southern uplands would not have been in favor of the Union because they would have lost all connection to a foreign market.¹⁸⁴ In

¹⁸¹ Records of the Parliament of Scotland, Parliamentary Minutes, 30 Dec. 1706.

¹⁸² NLS, 1.24(197), *Memorial concerning the state of the manufactures before and since the year 1700, at which time the laws concerning trade and manufactures were revived and increased: as also, some remarks upon the arts used for eluding these laws, humbly offered to his grace, and the honourable Estates of Parliament*, 2.

¹⁸³ NLS, Ry.1.2.76(9), *His Grace Her Majesties High Commissioner and the Honourable Estates of Parliament. The heemble petition of the peer shank workers and fingreen spinners of Aberdeen, and places thereabout*.

¹⁸⁴ Smout, *Scottish Trade*, 272-3.

addition, while the intent may have been to create more factories for producing woolen products and thereby increasing demand for raw wool, this was going to take time.¹⁸⁵ Furthermore, even with the money from the XV Article, it is hard to ignore the competition from English wool that would soon enter Scotland. All of which looked likely to harm Scottish wool producers initially after the Union. This did not escape contemporaries either as Defoe and various other commentators noted that people who raised sheep in the southwest and northern parts of Scotland would be most likely to suffer because of union (Galloway, Roxburghshire, Tweeddale, Selkirk).¹⁸⁶

John Cochrane, one of the freeholders of land within Renfrewshire, portrays some of the Union woolen opposition. Cochrane wrote that the freeholders of Galloway and western Scotland were against the Union. This was in part because it would hurt their religion but also because of what it would do to the woolen and linen industries in western Scotland. Cochrane stated that in Eigg, and throughout western Scotland, people were afraid that it was in “the English woolen traders interest to discourage all manufacturing.” Cochrane and the other freeholders were concerned that the Scottish Parliament was not listening to their concerns, “that [Lord Pollock, their union representative] cannot be ignorant what ruin will befall renfrew shyre if the parliament sot not tyme to fully consider the linen trade, for the ruin must fall on us shepherds.”¹⁸⁷ Another 1706 petition signed by over 50 people including the magistrates, burgesses, and inhabitants of New Galloway (Galloway) claimed that the Union would ruin

¹⁸⁵ Defoe, *Union*, 431.

¹⁸⁶ NRS, GD112/39/202/11, John Campbell of Mamore, Edinburgh, to [Breadalbane] his uncle, 27 Nov. 1706; Defoe, *Union*, 431.

¹⁸⁷ NRS, GD406/1/5439, John Cochrane, Waterseyd, to the earl of Dundonald, describing a meeting of the freeholders of the district to sign an address against the Union, and enclosing a copy of the text, 3 Oct. 1706.

Scotland.¹⁸⁸ Although even within Galloway not everyone was against union as Jon Flemming the earl of Wigtown (Galloway) voted in favor of union. As with salt, wool was another resource that split voters and support on the Union.

Linen

Like the woolen industry, there was considerable debate in the Scottish Parliament for advancing the Scottish linen industry prior to the Union debates. Several petitions and discussions within the Parliament acknowledged its importance in Scottish trade.¹⁸⁹ For example, a 1693 memorandum from a committee on the linen trade in the Scottish Parliament considered the seemingly large profit that would arise from advancing the linen cloth industry and asked the Parliament to look at the successes of England and Ireland in this trade as evidence of its potential. The committee noted how the seas were currently “troublesome” since “trade sent abroad [was] ruined with wars,” but this was to Scotland’s advantage because England utilized and imported substantial amounts of linen cloth, and any disturbance of overseas trade routes meant that Scotland became the safest option for buying linen. With the proper encouragement (i.e. government support) the committee claimed that linen could produce £1,000,000 sterling per year.¹⁹⁰

It seems that the Scottish Parliament heeded much of the ‘advice’ from the committee as the 1690s saw a marked increase in the formation of new linen companies that earned the

¹⁸⁸ *To His Grace Her Majesty’s High Commissioner to the Estates of Parliament; The Humble Address of the Magistrates Own Council, Burgesses and Inhabitants of the Burgh of New Galloway* (Edinburgh, 3 Dec. 1706).

¹⁸⁹ NRS, PA7/14/110 (1-2), Two Drafts of an Act anent the making of linen cloth. Reported to Parliament and remitted back to the Committee; Report of the Committee as to the export of linen cloth.

¹⁹⁰ NRS, PA7/14/100, Memorandum for the Committee, being considerations on the profits that would arise by the advancement of linen cloth.

protection of a company and paid no taxes or duties on exports for 19-21 years. In 1693 alone, we see the new arrival of several linen companies in Pauls Work, Leith Wynd, the Cittadel of Leith, and at the “Blietching” (bleaching) field at Bonningtoun. One petition for the manufactory of linen to the Scottish Parliament argued that Scottish linen would produce a sizeable income and also employ the poor.¹⁹¹ In many cases, this petition was right, as the Scots Linen Company, for instance, saw so much success that in 1695 the Scottish Parliament extended their privileges as a company to their four new factories and workshops.¹⁹² They were not alone either as several other Scottish linen companies sought to increase production by having the customs tax lowered on raw materials.¹⁹³

From the account books of Sir John Schaw and partners from Greenock, we get a glimpse into the success of one Scottish linen company operating throughout the country. Schaw and his partners imported their raw materials from Holland and produced linen products sold in Scotland and exported. Linen exports for 1691-92 were 46,007 pounds (weight) from Glasgow, 7,892 from Kelso, 8,126 from Edinburgh, 1,700 from Leith, 584 from Irwin, 7,740 from Port Glasgow, 18,658 from Dumfries, 8,265 from Alisonbank, 2,100 from Borrowstounness, 200 from Campbletown, which all totaled 101,272 pounds weight of linen exported that year.¹⁹⁴ A slightly decreased though still significant amount of linen cloth was still being exported in 1694, but by this time Schaw and his partners mainly relied upon Glasgow and Leith as their export ports,

¹⁹¹ NRS, E73/120, Account, with vouchers, of Sir John Schaw of Greenock and partners, tacksmen of H.M. Customs, Foreign Excise and Bullion: Prohibited goods 1 Nov. 1691-1 Nov. 1696; Act in facours of the linen Manufactory, 13 Jun. 1693, 2.

¹⁹² NRS, PA7/15/30, Printed copy of Act in favour of the Scots Linen Company.

¹⁹³ NRS, PA7/14/110 (1-2); PA7/15/30, 59, Printed copy of Act in favour of the Scots Linen Company; Petition to the Committee by Traders in Scots Linen with reference to custom on Muslin,

¹⁹⁴ NRS, E73/120, Tacksmen: Account, with vouchers, of Sir John Schaw of Greenock and partners.

with a sizeable amount of their linen products shipped to London.¹⁹⁵ While the previous account demonstrated the importance of the linen export market, linen products were also purchased in Scotland as Lord David Hay's inventory attests. Hay owned 20 shirts, 9 handkerchiefs, 6 quilted cloths, 12 pieces of cloth, and 29 other assorted items all produced from Scottish linen.¹⁹⁶ It was because of financial successes like those above that the Scottish linen industry began drawing investments from merchants and landholders.¹⁹⁷

William Paterson's *The Occasion of Scotland Decay in Trade*, (1705) spoke more generally of how linen production could remedy the current financial straits, amongst several other resources. Paterson argued that planting their own lint seed would produce more linen trade, but being aware of the problematic Scottish climate, he immediately stated that lint seed still yielded in colder climates of Sweden and Denmark.¹⁹⁸ William Seton echoed this sentiment positing that linen and flax was where Scotland could make the most profit from England. Seton argued that England would not grow or manufacture goods from linen because they could just trade their wool for it. This made linen and flax Scotland's great opportunity, which meant they needed to grow and produce more of their own linen cloth. Yet, this was complicated because Seton claimed there was little open land of decent quality to produce flax in the country, but the opportunity for linen remained.¹⁹⁹

¹⁹⁵ NRS, E73/119, Tacksmen: Account, with vouchers, of Sir John Schaw of Greenock and partners.

¹⁹⁶ NRS, GD73/1/15, Inventory of Lord David Hay's linen, 1 Jan. 1696.

¹⁹⁷ NRS, GD305/1/167/100, Proxy by "Linlithgow" empowering the Viscount of Tarbat to vote for him at the Meeting of the Scots Linen Manufactorie Edinburgh, 19 Jul. 1694; NRS, GD305/1/152/347, Receipt by George Clerke Junior Merchant in Edinburgh, 31 Dec. 1694.

¹⁹⁸ William Paterson, *The Occasion of Scotland Decay in Trade with a Proper Expedient for Recovery Thereof and the Increase of Our Wealth* (1705), 6.

¹⁹⁹ Seton, *Some Thoughts on Ways and Means*, 35.

In *A letter from a merchant to a countrey [sic] gentleman; touching matters of trade*, the author argued that the linen industry, especially linen cloth, was one of the most beneficial trades for Scotland, which they needed to take better advantage of.²⁰⁰ By 1705 the Scottish Parliament was doing just that, passing protection for Scottish linen by prohibiting the importation of foreign made linen products and removing the duties associated with the export of Scottish made linen products.²⁰¹ Nevertheless, it was still a mercantilist system where the Scottish Parliament set limitations on who could sell or export linen products and the sizes of cloth that could be sold or exported.²⁰²

Linen and Union

During union negotiations, the linen industry took an import place in the debates. Daniel Defoe again appeared at the center of several of these, frequently commenting upon how the linen trade would benefit from union. While some of Defoe's comments can be taken with a grain of salt, there was little doubt that he was knowledgeable of and wrote upon some of the more pressing interests in Scotland. In his circularly titled *Considerations in Relation to Trade Considered* (1706) he posited that the linen trade would benefit the most from union, in part because of the high English demand for linen cloth from Scotland.²⁰³ Defoe's *A Fifth Essay at Removing National Prejudices* (1707) highlighted the current poor conditions of Scottish trade and wanted his audience to think of how bad it could get if England closed its borders and no

²⁰⁰ NLS, 1.44(5), *A letter from a merchant to a countrey [sic] gentleman; touching matters of trade*, 3.

²⁰¹ NRS, PA7/19, 81 (1-2), Draft Act prohibiting importation of foreign linen, muslin etc; Draft of the Act declaring Linen and Woollen manufactures free of duty at exportation,

²⁰² NRS, PA7/17/1/95, Printed Draft Act for measuring and sealing linen and woollen cloth etc. 31 Jan. 1701; NRS, PA7/18, Overture or Draft of an Act for measuring and sealing of linen and woollen cloth.

²⁰³ Defoe, *Considerations in Relation to Trade Considered*, 22-24.

longer took linen products.²⁰⁴ This negative scenario would have been made worse in the overseas market since Defoe claimed that no other country could take the 1.2 million ells of linen products that England imported from Scotland every year.²⁰⁵ Defoe ended the essay with what in his view provided the solution; union, positing that in a union with England, Scotland would double its exports especially in coal, salt, grains, wool, and linen.²⁰⁶

Others like William Black, who regularly debated Defoe in print, agreed that linen was vital for Scotland. In *Some Consideration in Relation to Trade* (1706) Black denoted the importance of linen to Scotland's economy, arguing that those industries needed better management and that with a union linen would benefit because it could then be imported into England free of duties.²⁰⁷ To help the Scottish linen industry even further, Black argued for a ban on linen cloth importation in Britain after the Union, with the country relying solely upon Scottish linen. He argued that the taxes from the sales of linen products could then go to finance the improvement of linen and woollen industries.²⁰⁸ George Ridpath advanced a similar argument in the 1706 printing of *Discourse Upon the Union of Scotland and England*. In it, the author posited that the taxes added to linen, especially those during William's reign was "equal to almost a prohibition" of trade.²⁰⁹ To make up for this, the author argued that Scotland should have access to trade their linen products to the West Indies.²¹⁰ This in fact was offered as part of the Union itself in Articles IV and VI, which likely helped convince those in the linen trade to favor union.

²⁰⁴ Defoe, *A Fifth Essay*, 9-10.

²⁰⁵ Defoe, *A Fifth Essay*, 12.

²⁰⁶ Defoe, *A Fifth Essay*, 16.

²⁰⁷ Black, *Some Consideration in Relation to Trade*, 3, 8.

²⁰⁸ Black, *Some Consideration in Relation to Trade*, 4,11.

²⁰⁹ Ridpath, *A Discourse Upon the Union of Scotland and England*, 68-71.

²¹⁰ Ridpath, *A Discourse Upon the Union of Scotland and England*, 153.

Figure 8.1 supports Black’s argument, that linen was vital to the Scottish economy. This figure lists the value in pounds of linen exported from Scotland to England annually. Apart from 1706-07, when the records were only partially kept, a result of the Union, there is significant growth in the linen trade, providing no less than £40,000 sterling to Scotland per year. In many cases this was the first or second greatest export for Scotland each year, alternating with cattle. So clearly, those involved in the linen trade had a significant stake in the Union, and with further protections, Scottish profits in the linen trade were only likely to grow.

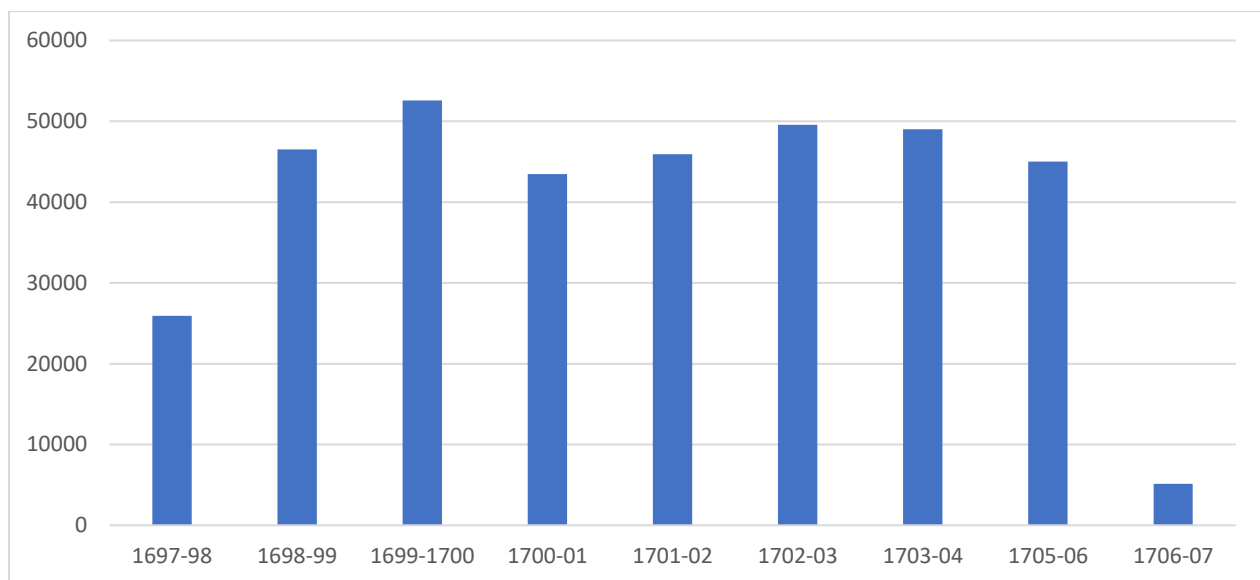


Figure 8.1. Linen exports from Scotland to England (missing data for 1704-05).

Source: NRS, RH4/157, English Customs Records.

While linen itself went unmentioned in the Articles of Union, it was still an important part of the conversation. The Scottish Parliament’s committee on trade examined the Scottish linen trade and found that the VI Article of Union promoted and protected the Scottish linen trade by removing all export duties and allowing for trade to the plantation markets, “or any part beyond the sea.” Because of this, they concluded that there was no reason to add a separate

clause for linen in the articles.²¹¹ Although not explicitly stated, the VI Article of Union protected and expanded the Scottish linen industry, gaining supporters for union in this industry.

The Climate of Union

While tracing the origins of the Anglo-Scottish Union, Christopher Whatley's *Scots and the Union* found that union was not the result of a single factor, but instead it had many factors and origins. The findings of this work agree wholeheartedly with this conclusion and posit that environmental factors deserve to be an equal part of this discussion. Another additional point Whatley made was that a majority of the people who voted for or against a union did so because they truly believed that it was in the best interest of Scotland.²¹² The information presented in this chapter, and in the table below for example, does not necessarily contradict Whatley's point. Several Scottish Parliamentary representatives, the duke of Hamilton is perhaps best known amongst these, wrote within their accounts of the Union that they were doing what they thought was best for Scotland.²¹³ It just happened that in some of these cases, what they thought was best for Scotland also involved the trade and industry(s) they were involved in. For instance, in 1702, Daniel Hamilton wrote to the duke of Hamilton how salt and coal is "our concern more particularly" highlighting the importance of salt and coal to the duke of Hamilton and the entire Hamilton family.²¹⁴ Examples from this chapter, raise little doubt that if a representative's trade in coal, salt, or herring fishing, for example, was more successful, it would have seemingly

²¹¹ Records of the Parliament of Scotland, 11 Dec. 1706.

²¹² Christopher Whatley, *The Scots and the Union*, (Edinburgh: Edinburgh University Press, 2006). See especially, 5, 31-2, 42-5, 244.

²¹³ For instance, see the Duke of Hamilton's accounts on union in the NRS, GD406/1, between 1704-06. Several times he stated that he was against union for the good of Scotland. While his brother, the earl of Selkirk, and his brother in law, the duke of Atholl, tried to convince him that they supported union for the same reason.

²¹⁴ NRS, GD406/1/4974, Daniel Hamilton, Edinburgh, to the duke of Hamilton, 23 Apr. 1702.

brought more success to Scotland. So, it is highly likely that someone voting for or against union could think that their vote, either way, was in the best interest of the country and at the same time, in the best interest of their own industry(s).

Tables 8.5 and 8.6 identify the voting members of the Scottish Parliament in the final vote on the Union from January 1707 and highlights their connections to Scotland's 'natural products.' Not all members on these lists had direct financial interests in the resources they were associated with, and in the cases where they did not have a financial interest, those members explicitly stated between 1705-07 that this resource was at least one reason they would vote for or against union. This lists do not include several members who abstained from the final vote, and when possible, those members who abstained from the final vote but voted for or against certain measures related to their interests in separate articles appear throughout this work. Nevertheless, what this list identifies is that out of the 175 members of the Scottish Parliament who participated in the final vote over union, (106 voted in favor of the Union and 69 voted against with several abstained from the final vote out of the total 247 members), 71 had specific connections to Scotland's natural resources.²¹⁵ In many cases this was likely not the only reason a member of Parliament voted for or against union, however, one cannot deny the influence this had on their thinking, at least in some part.

While the purpose of this work has not been to argue that the climatic and environmental changes in Scotland from 1660-1707 caused the Anglo-Scottish Union, it has demonstrated the importance of climatic and environmental factors within discussions of the Anglo-Scottish Union. Additionally, it has shown how contingency, especially with the Scottish environment and climate played an important role in politics; it explored how Scotland took part in the

²¹⁵ Whatley, *Bought and Sold for English Gold*, 28.

“Global Crisis” and the Global Little Ice Age; it demonstrated the conjuncture and contingency of events at the beginning of the eighteenth century; finally, it detailed how Scotland was interconnected within a North Seas World, and how its declining economic power at the end of the seventeenth century had Scotland look to remain part of another economic union, albeit a British Atlantic one.

Table 8.5 Members of the Scottish Parliament Voting in favor of Union and their connections to Scotland's natural resources

Herring	Sheep	Salt	Coal
Alexander Douglas of Eagleshay	John Cockburn, younger, of Ormestoun	Mr. Francis Montgomery of Giffan	John Hamilton-Leslie, 9th Earl of Rothes
James Douglas, 11th Earl of Morton	John Mure	Mr. James Dunbarr, younger, of Hemprigs	David Wemyss, 4th Earl of Wemyss
Mr. Robert Dowglass	James Scott	William Morison of Prestongrange	David Leslie, 3rd Earl of Leven
John Urquhart	Sir James Smollet	Mr. William Dalrymple of Glenmuir	Sir Robert Dickson of Inverask
	Daniel Campbell		Sir Peter Halket
			Mr. John Clerk
Trade	Salt/Coal	Oats/Grains	Trade/Grains
James Graham, 1st Duke of Montrose	John Erskine, 22nd Earl of Mar	Archibald Campbell, Earl of Illay	John Ross
Mr. George Dalrymple		John Halden of Glenagies	Mr. Patrick Ogilvie
		Mr. James Dunbarr, younger, of Hemprigs	Mr. Aeneas McLeod of Cadboll
		David Carnegie, 4th Earl of Northesk	Mr. William Sutherland

Source: List of voting members is from final voting session over Union 16, Jan. 1707

Table 8.6 Members of the Scottish Parliament Voting against Union with connections to Scotland's natural resources

Salt	Salt	Salt	Salt
James Hamilton, 4th Duke of Hamilton	William Fraser, 12th Lord Saltoun	Robert Scott	Robert Rollo of Powhouse
Charles Hay, 13th Earl of Erroll	Charles Oliphant, 7th Lord Oliphant	Robert Kellie	John Murray of Strowan
William Keith, 9th Earl Marischal	John Elphinstone, 4th Lord Balmerino	Mr. John Lyon	Mr. Thomas Hope of Rankeillor
Alexander Sinclair, 9th Earl of Caithness	Walter Stuart, 6th Lord Blantyre	Sir David Cunningham	Mr. Patrick Lyon of Auchterhouse
James Stewart, 5th Earl of Galloway	William Hamilton, 3rd Lord Bargany	George Home	Mr. James Carnagie of Phinhaven
David Murray, 5th Viscount of Stormont	Andrew Fletcher of Saltoun	Sir Robert Sinclair, 3rd Baronet	David Graham, younger, of Fintrie
Patrick Kinnaird, 3rd Lord Kinnaird	Sir Hugh Cathcart of Carletoun	Mr. Alexander Fergusson of Isle	Alexander McKye of Palgown
Mr. William Cochrane of Kilmarnock	Lord Colvill	John Brisbane, younger, of Bishoptoun	Mr. George McKenzie of Inchcoulter
John Sinclair, younger, of Stevensone	Mr. Robert Fraser	William Livingston, 3rd Viscount of Kilsyth	John Hamilton, 2nd Lord Belhaven and Stenton
Sheep	Codfish	Salt/Sheep	Trade/Grains
Walter Stewart	Alexander Duff	William Johnstone, 1st Marquess of Annandale	John Bayne
Walter Scott			

Source: List of voting members is from final voting session over Union 16, Jan. 170

EPILOGUE

Union Secured, Union Contested

On 25 April, 1707, less than one week before the Union went into effect, a fierce battle raged outside of Edinburgh. One account described the “roaring, plunging, and threshing” of the combatants, which caused “great terror” amongst the spectators. In this case the battle was not waged in Parliament but in the sea between “sea monsters” or whales, however, the significance of this fight resonated with spectators. One anonymous account of the event said that people saw this as a bad omen of the impending Union, that “the said animals to be of two several tribes the one being Scots and the other English, who meeting together and contending for seniority, came to decide the matter by blows...”¹ As this passage helped demonstrate, although the Acts of Union went into effect on 1 May 1707, it was still contested and not universally accepted. This was most clearly demonstrated in the Jacobite Rebellions, especially the 1708 rebellion happening less than one year following Union, which was hampered by poor winds and weather. Geoffrey Parker was right in his analysis of this as an era of crisis, though he argued that this crisis was over in Britain after 1688.² Yet he overlooked the final years of one of his protagonists, climate and the Global Little Ice Age.

Early on, a dearth and a Jacobite Rebellion challenged the Union. The autumn and winter of 1708/09 was one of the coldest in Europe during the Global Little Ice Age.³ In Scotland,

¹ National Archives, Kew, An Accompt of the Dreadful Battle of Whales, or Sea Monsters in the Firth of Edinburgh the 25 April Instant 1707.

² For more on Parker’s argument and especially as it pertains to Britain see Parker, *Global Crisis*, part V.

³ Jürg Luterbacher, Daniel Dietrich, Elena Xoplaki, Martin Grosjean, and Heinz Wanner, “European Seasonal and Annual Temperature Variability, Trends, and Extremes Since 1500,” *Science* 303 (2004): 1499-1503.

several reports from 1709 denoted the dearth and scarcity in and around Edinburgh. One pamphlet from “the justices of the city of Edinburgh” claimed that the scarcity and dearth in several places was growing and that “in order to relieve the poor of the place under the present dearth and scarcity of victual, they [the justices] have bough a certain quantity of meal, and have ordered the samen to be sold in public market.”⁴ Additional pamphlets reiterated the poor conditions in Scotland, with one arguing that the government should step in and provide shipping for grain to travel to Scotland, “where it is most wanted” from the “abundance” in England and Ireland.⁵ Despite these early accounts of scarcity, 1709 is not known as one of the great famines or scarcities in Scotland. In this case, we see the direct result of Union as access to English grain markets and poor relief curbed food shortages and prevented famine.

The other immediate challenge to Union, the 1708 Jacobite Rebellion, was an attempt by the Jacobites, or the followers of James Francis Edward Stuart, and several disaffected Scots to overthrow Queen Anne and retake the British throne.⁶ With the help of France, which supplied 65 ships, 6,000 soldiers, and arms for an additional 15,000 supporters in Scotland, the Jacobites launched a naval operation intending to land in Scotland and raise a rebellion with Jacobite supporters.⁷ After departing in early March 1708, a storm forced the Franco-Jacobite fleet to

⁴ NLS, Pamphlet Series 1.22/178, *Act Anent the Present Dearth, and Relief of the Poor by the Justices of the City of Edinburgh* (1709). The price for grain was set at 12 schillings per peck, which by comparison it sold for over one pound during the 1690s.

⁵ NLS, Pamphlet series 1.22/179, *An Expedient for Preventing the Dearth of Victual*, (1709); NLS, Pamphlet series 1.22/180, *Act and Intimation, Against Forestallers of Victual &c*, (1709).

⁶ Jacobites supported James II and by 1708, followers supported his son James Francis Edward Stuart. Jacobites believed that James and his family were the rightful heirs to the British crown after it was lost in 1688 in the ‘Glorious Revolution’.

⁷ In 1707, the Jacobites sent over Colonel Nathaniel Hooke and planned an invasion of Scotland. Hooke received assurances from the nobles and lords of Scotland including Errol, Panmure, Stormont, Kinnaird, James Ogilvie, N. Moray, N. Keith, Drummond, Thomas Fotheringham, and Alexander Innes. See Nathaniel Hooke, *The Secret History of Colonel Hooke's Negotiations in Scotland, in Favour of the Pretender, in 1707 Including the Original Letters and Papers Which*

anchor for two days. The storm scattered much of the French fleet and more importantly cost the fleet two days' time. After this delay the fleet sailed up the eastern coast of Scotland pursued by Admiral George Byng of the Royal Navy.⁸ While off the coast of Scotland, the French and Jacobite forces attempted to land their troops but met a contrary wind that pushed them away from the coast until the Royal Navy spotted them. Ultimately, the French and Jacobites failed to land any troops in Scotland and with a larger fleet against them, the Franco-Jacobite forces sailed back to France.⁹ Despite not landing any troops, the 1708 Jacobite Rebellion became a pivotal event in cementing the early establishment of the Kingdom of Great Britain.

Despite its initial preservation, there was still animosity towards the Union and its slowness in improving trade and the economy in Scotland.¹⁰ One petition from the “exporters of herrings and other fish, and of beef and pork from Scotland” described how Union had failed them. They argued that while the idea of Union had good intentions, those who utilized salt for herring, beef, and pork had not received the benefits they sought through the Union, and that the bounties and encouragement of trade “has been constantly refused them.” To support this point, they posited that prior to Union 4,000 lasts of herring could be exported annually from Scotland, but in the two years after the Union only 3,802 lasts had been exported in total, and to make

Passed between the Scotch and Irish Lords and the Courts of Versailles and St. Germain (London: Printed for T. Becket, 1760), 88-91.

⁸ Britain was aware of the planned invasion, though they did not know its intended location, and sent out Admiral George Byng to await the French fleet in the Channel.

⁹ Forbin, *Memoirs of the Count De Forbin, Commodore in the Navy of France: Containing His Pleasant Narrative of the Voyages He Made to the East-Indies. Translated from the French. In Two Volumes* (London: Printed for J. Pemberton, 1731), 248; For more on the 1708 Jacobite Rebellion see John Gibson, *Playing the Scottish Card: The Franco-Jacobite Invasion of 1708* (Edinburgh: Edinburgh University Press, 1988).

¹⁰ Whatley, *Bought and Sold for English Gold*, 5-6.

matters worse, the price of salt had risen.¹¹ Another petition claimed that the promise of improved commerce was a reason they supported Union, but this had been “frustrated” at every effort and trade had declined in Scotland since the Union, which disappointed even the strongest supporters of Union.¹²

Foreshadowing much of the previous arguments, Katherine Skene wrote in late 1706 to Lord Edward Murray, brother of the duke of Atholl, that it would be quite some time before those who needed the money from the equivalent wound up seeing it or any benefits from the Union.¹³ This astute observation was in fact reality for many that were disaffected with Union in 1713. This frustration and agitation towards the Union came to a head in June 1713 when Parliament tried to extend the malt tax to Scotland, which had been free from such tax under the XIV Article of Union. When compounded with the still stagnant Scottish economy, discontent over the Union became widespread. The earl of Seafield presented a bill for the dissolution of the Union, or at least further Parliamentary discussion over its dissolution, citing as justification the removal of the Scottish Privy Council, the Treasons Act, refusing to let Scottish peers with British titles sit in the House of Lords, “but above all, our many taxes, especially the Malt Tax,

¹¹ NLS, APS.el.28, *The Case of the Exporters of Herrings and Other Fish, and of Beef and Pork From Scotland, Since the 1st of May, 1707.*

¹² NRS, GD224/1058/49, James Anderson, WS, Antiquary, Volume containing papers collected by Anderson, 1662-1728; George Lockhart also produced a well-known account of the union published in 1714. See George Lockhart, *Memoirs Concerning the Affairs of Scotland From Queen Anne's Accession to the Throne, to the Commencement of the Union of the Two Kingdoms of Scotland and England, in May, 1707. With an Account of the Origine and Progress of the Design'd Invasion from France, in March, 1708* (London: Printed: and sold by J. Baker, 1714).

¹³ NRS, RH15/10/4, Letters from Katherine Skene (Edinburgh), to Lord Edward Murray, brother of the 1st duke of Atholl, her husband, 26, Nov. 1706.

and the ruin of our trade and manufactories.” Despite their objections, this effort fell short by four votes.¹⁴

Some of the discontent from 1713 was the result of the still turbulent Scottish climate, but part of the blame also fell with the failure to invest in Scotland like the XV Article stipulated. By the 1720s, two events began to turn the tide. The first was the end of the Global Little Ice Age around 1720 and a return to a ‘normal’ climate, or at least one that deviated from the norm less frequently. Additionally, 1719 saw the end of the first wave of Jacobite rebellions. Like the 1708 and 1715 Jacobite rebellions, the 1719 rebellion relied upon an ambitious naval invasion of Britain in attempts to overthrow the British monarch. Most of the military support came from Spain, but this fleet was similarly scattered and thrown off course, this time by a cut-off-low pressure system in the Atlantic. A smaller rebellion still took place in Scotland, but it was put down by British forces.¹⁵ In part because of the rebellion, there was a movement to finally put money into Scotland that had been due since the Union of 1707, which led to the creation of the Royal Bank of Scotland in 1727. Thus, by the time the Scottish climate and environment were more responsive to investments in industry and their natural resources, the money was there.¹⁶ Where changes in the Scottish climate and environment prior to 1707 had drawn the Scottish Parliament closer to a union, after 1707, the Scottish climate and environment helped, at least in part, in its preservation.

¹⁴ NRS, GD45/14352/19, found in Geoffrey Holmes and Clyve Jones, “Trade, The Scots and the Parliamentary Crisis of 1713,” *Parliamentary History* 1 (1982): 47-77, see especially 57-8.

¹⁵ For more on this see Patrick Klinger, “Weather and the Jacobite Rebellion of 1719,” *Environment and History* 23 (2017): 197-216.

¹⁶ Whatley, *Bought and Sold for English Gold*, 65. For more on these developments, or at least several attempts of these, see Frederick Albritton Johnson, *Enlightenment’s Frontier* (New Haven, CT: Yale University Press, 2013).

Together the climatic and environmental changes during the Global Little Ice Age motivated the Scottish Parliament's decision to end its independence and join a United Kingdom in 1707. These changes influenced the economic activities, political thinking, and government decision-making during negotiations for a union circa 1660-1707. By highlighting the disastrous conditions circa 1660-1707, this work demonstrates the importance of climatic and environmental change in the decisions of governments and political thinking, and that sometimes, even in an era of crisis, union, and building something new was the solution rather than a confrontational war. In fact, many Scottish parliamentarians voted for Union thinking it was in Scotland's best interest, be it financially, politically, or socially. As the more recent reports from the IPCC come out detailing the immediate reality of a changing climate and environment, and political discussion within Britain center on unions, perhaps in response we will soon enter an era where climate and the environment become the driving force in economics and politics. If nothing else, this does seem to provide a cautionary account suggesting that a country's adaptations and responses to a complex blend of natural and geopolitical factors are more easily buffered when at least thinking of themselves as part of a larger economic union.²⁰ Perhaps we can heed such lessons from the past.

²⁰ See Also Rosanne D'Arrigo, Patrick Klinger, Timothy Newfield, Milos Rydval, and Rob Wilson, "The Cold Pulse of the 1690s and the Consequences of Scotland's Failure to Cope," *Journal of Volcanology and Geothermal Research* (Forthcoming).

APPENDIX 1

Articles of Union Related to Trade and Resources, 1707

IV. That all the subjects of the United Kingdom of Great Britain shall, from and after the union, have full freedom and intercourse of trade and navigation to and from any port or place within the said United Kingdom and the dominions and plantations thereunto belonging, and that there be a communication of all other rights, privileges and advantages which do or may belong to the subjects of either kingdom, except where it is otherways expresly agreed in these articles.¹

VI. That all parts of the United Kingdom, for ever from and after the union, shall have the same allowances, encouragements and drawbacks and be under the same prohibitions, restrictions and regulations of trade, and lyable to the same customs and duties on import and export, and that the allowances, encouragements and drawbacks, prohibitions, restrictions and regulations of trade and the customs and duties on import and export settled in England when the union commences shall, from and after the union, take place throughout the whole United Kingdom, excepting and reserving the duties upon export and import of such particular commodities from which any persons the subjects of either kingdom are specially liberated and exempted by their privat rights which, after the union, are to remain safe and entire to them in all respects as before the same; and that from and after the union no Scots catle carried into England shall be lyable to any other duties, either on the publick or privat accompts than these duties to which the catle of England are or shall be lyable within the said kingdom. And seing by the laws of England there are rewards granted upon the exportation of certain kinds of grain wherin oats grinded or ungrinded are not expressed, that, from and after the union, when oats shall be sold at fifteen shillings sterling per quarter or under, there shall be payed two shillings and six pence sterling for every quarter of the oat meall exported in the terms of the law, wherby and so long as rewards are granted for exportation of other grains, and that the bear of Scotland have the same rewards as barley. And in respect the importation of victuall into Scotland from any place beyond sea would prove a discouragement to tillage, therfor, that the prohibition as now in force by the law of Scotland against importation of victual from Ireland or any other place beyond sea into Scotland do, after the union, remain in the same force as now it is, untill more proper and effectuall wayes be provided by the parliament of Great Britain for discouraging the importation of the said victuall from beyond sea.

VIII. That, from and after the union, all forraign salt which shall be imported into Scotland shall be charged at the importation there with the same duties as the like salt is now charged with being imported into England, and to be levied and secured in the same manner. But in regard the duties of great quantities of forraign salt imported may be very heavie on the merchants importers, that, therfor, all forraign salt imported into Scotland shall be cellared and locked up under the custody of the merchant importer, and the officers employed for levying the duties

¹ The following records of the Articles of Union are from the Records of the Scottish Parliament to 1707, found at <https://www.rps.ac.uk/>.

upon salt, and that the merchant may have what quantities thereof his occasion may require not under a weigh or fourtie bushells at a time, giving security for the duty of what quantity he receives payable in six moneths. But Scotland shall, for the space of seven years from the said union, be exempted from paying in Scotland for salt made there the dutie or excise now payable for salt made in England; but, from the expiration of the said seven years, shall be subject and lyable to the same duties for salt made in Scotland as shall be then payable for salt made in England, to be levied and secured in the same manner, and with proportionall drawbacks and allowances as in England; with this exception, that Scotland shall, after the said seven years, remain exempted from the dutie of two shillings and four pence a bushell on home salt imposed by ane act made in England in the ninth and tenth of King William the third of England. And if the parliament of Great Britain shall, at or before the expiring of the said seven years, substitute any other fund in place of the said two shillings and four pence of excise on the bushell of home salt, Scotland shall, after the said seven years, bear a proportion of the said fund and have an equivalent in the terms of this treaty, and that during the said seven years there shall be payed in England for all salt made in Scotland and imported from thence into England the same duties upon the importation as shall be payable for salt made in England, to be levied and secured in the same manner as the duties on forraign salt are to be levied and secured in England. And that after the said seven years, how long the said dutie of two shillings [and] four pence a bushell upon salt is continued in England, the said two shillings [and] four pence a bushell shall be payable for all salt made in Scotland and imported into England, to be levied and secured in the same manner; and that during the continuance of the dutie of two shillings [and] four pence a bushell upon salt made in England, no salt whatsoever be brought from Scotland to England by land in any manner, under the penalty of forfeiting the salt and the catle and carriages made use of in bringing the same, and paying twenty shillings for every bushell of such salt, and proportionably for a greater or lesser quantity, for which the carrier as well as the owner shall be lyable, jointly and severally, and the persons bringing or carrying the same to be imprisoned by any one justice of the peace, by the space of six moneths without baill, and untill the penalty be payed; and for establishing ane equality in trade, that all fleshes exported from Scotland to England, and put on board in Scotland to be exported to parts beyond the seas, and provisions for ships in Scotland and for forraign voyadges, may be salted with Scots salt paying the same dutie for what salt is so employed as the like quantity of such salt payes in England, and under the same penalties, forfeitures and provisions for preventing of frauds as are mentioned in the laws of England. And that, from and after the union, the laws and acts of parliament in Scotland for pineing, curing and packing of herrings, white fish and salmond for exportation with forraign salt only without any mixture of British or Irish salt, and for preventing of frauds in curing and packing of fish, be continued in force in Scotland, subject to such alterations as shall be made by the parliament of Great Britain, and that all fish exported from Scotland to parts beyond the seas which shall be cured with forraign salt only and without mixture of British or Irish salt, shall have the same eases praemiums and drawbacks as are or shall be allowed to such persons as export the like fish from England. And that for encouragement of the herring fishing, there shall be allowed and payed to the subjects inhabitants of Great Britain, during the present allowances for other fishes, ten shillings [and] five pence sterling for every barrell of white herrings which shall be exported from Scotland, and that there shall be allowed five shillings sterling for every barrel of beef or pork salted with forraign salt, without mixture of British or Irish salt and exported for sale from Scotland to parts beyond sea, alterable by the parliament of Great Britain, and if any matters of fraud relating to the said duties on salt shall hereafter appear, which are not sufficiently provided

against by this article, the same shall be subject to such further provisions as shall be thought fit by the parliament of Great Britain.

XII. That during the continuance of the duties payable in England on coals, culm and cynders, which determines the thirtieth day of September, one thousand, seven hundred and ten, Scotland shall not be charged therewith for coals, culm and cynders consumed there, but shall be charged with the same duties as in England for all coal, culm and cynders not consumed in Scotland.

XIV. That the kingdom of Scotland be not charged with any other duties laid on by the parliament of England before the union, except those consented to in this treaty, in regard it is agreed that all necessary provision shall be made by the parliament of Scotland for the publick charge and service of that kingdom for the year one thousand, seven hundred and seven; provided, nevertheless, that if the parliament of England shall think fit to lay any further impositions by way of customs, or such excises, with which, by vertue of this treaty, Scotland is to be charged equally with England, in such case Scotland shall be lyable to the same customs and excises, and have an equivalent to be settled by the parliament of Great Britain, with this further provision, that any malt to be made and consumed in that part of the United Kingdom now called Scotland shall not be charged with any imposition upon malt during this present war. And seing it cannot be supposed that the parliament of Great Britain will ever lay any sorts of burthens upon the United Kingdom, but what they shall find of necessity at that time for the preservation and good of the whole, and with due regard to the circumstances and abilities of every part of the United Kingdom, therfor, it is agreed that there be no further exemption insisted upon for any part of the United Kingdom, but that the consideration of any exemptions, beyond what are already agreed on in this treaty, shall be left to the determination of the parliament of Great Britain.

XV. Whereas, by the terms of this treaty, the subjects of Scotland, for preserving an equality of trade throughout the United Kingdom, will be lyable to severall customs and excises now payable in England, which will be applicable towards payment of the debts of England contracted before the union, it is agreed that Scotland shall have an equivalent for what the subjects therof shall be so charged towards payment of the said debts of England, in all particulars whatsoever, in manner following, viz. That before the union of the said kingdoms, the soume of three hundred [and] ninty eight thousand and eighty five pounds, ten shillings be granted to her majesty by the parliament of England, for the uses aftermentioned, being the equivalent to be answered to Scotland for such parts of the saids customs and excises upon all exciseable liquors, with which that kingdom is to be charged upon the union, as will be applicable to the payment of the said debts of England, according to the proportions which the present customs in Scotland, being therty thousand pounds per annum, do bear to the customs in England, computed at one million, three hundred [and] fourty one thousand, five hundred and fifty nine pounds per annum; and which the present excises on exciseable liquors in Scotland, being therty three thousand and five hundred pounds per annum, do bear to the excises on exciseable liquors in England, computed at nine hundred [and] fourty seven thousand, six hundred and two pounds per annum; which soume of three hundred [and] ninty eight thousand [and] eighty five pounds, ten shillings shall be due and payable from the time of the union. And in regard that after the union, Scotland becoming lyable to the same customs and duties payable on import and export, and to the same excises on all exciseable liquors as in England, as well upon that account as upon the account of the increase of trade and people (which will be the

happy consequence of the union), the said revenues will much improve beyond the before mentioned annuall values thereof, of which no present estimate can be made. Yet, nevertheless, for the reasons aforesaid, there ought to be a proportionable equivalent answered to Scotland, it is agreed that, after the union, there shall be an accompt kept of the said duties arising in Scotland, to the end it may appear what ought to be answered to Scotland, as an equivalent for such proportion of the said encrease as shall be applicable to the payment of the debts of England. And for the further and more effectually answering the severall ends hereafter mentioned, it is agreed that, from and after the union, the whole encrease of the revenues of customs and duties on import and export, and excise upon exciseable liquors in Scotland, over and above the annual produce of the said respective duties, as above stated, shall go and be applied for the term of seven years, to the uses hereafter mentioned; and that upon the said account, there shall be answered to Scotland annually from the end of seven years after the union, an equivalent in proportion to such part of the said increase as shall be applicable to the debts of England, and generally that an equivalent shall be answered to Scotland for such parts of the English debts as Scotland may hereafter become lyable to pay by reason of the union, other than such for which appropriations have been made by parliament in England of the customs or other duties on export and import, excises on all exciseable liquors, in respect of which debts, equivalents are herein before provided. And as for the uses to which the said soume of three hundred [and] ninty eight thousand [and] eighty five pounds, ten shillings to be granted as aforesaid, and all other monies which are to be answered or allowed to Scotland, as said is, are to be applied, it is agreed that in the first place, out of the foresaid sum, what consideration shall be found necessary to be had for any losses which privat persons may sustain by reducing the coin of Scotland to the standard and value of the coin of England may be made good; in the next place that the capitall stock or fund of the African and Indian Company of Scotland, advanced together with the interest for the said capitall stock after the rate of five per cent per annum from the respective times of the payment thereof, shall be payed, upon payment of which capital stock and interest it is agreed the said company be dissolved and cease, and also, that from the time of passing the act of parliament in England for raising the said soume of three hundred [and] ninty eight thousand [and] eighty five pound, ten shillings, the said company shall neither trade nor grant licence to trade, providing that if the said stock and interest shall not be payed in twelve moneths after the commencement of the union that then the said company may from thence forward trade or give licence to trade untill the said hail capitall stock and interest shall be payed. And as to the overplus of the said soume of three hundred [and] ninty eight thousand [and] eighty five pound, ten shillings, after payment of what consideration shall be had for losses in repairing the coin and paying the said capitall stock and interest, and also the haill increase of the said revenues of customs duties and excises above the present value which shall arise in Scotland during the said term of seven years, together with the equivalent which shall become due upon the improvement thereof in Scotland after the said term, and also as to all other soumes which, according to the agreements aforesaid, may become payable to Scotland by way of equivalent for what that kingdom shall hereafter become lyable towards payment of the debt of England, it is agreed that the samen be applied in manner following, viz. That all the publick debts of the kingdom of Scotland as shall be adjusted by this present parliament shall be payed and that two thousand pounds per annum, for the space of seven years, shall be applied towards encouraging and promoting the manufacture of course wool within these shires which produce the wool, and that the first two thousand pounds sterling be payed at Martinmass next, and so yearly at Martinmass during the space foresaid, and afterwards the same shall be wholly applied towards

the encouraging and promoting the fisheries and such other manufactures and improvements in Scotland as may most conduce to the generall good of the United Kingdom. And it is agreed that her majesty be impowered to appoint commissioners, who shall be accountable to the parliament of Great Britain, for disposing the said soume of three hundred [and] ninty eight thousand [and] eighty five pounds, ten shillings, and all other monies which shall arise to Scotland, upon the agreements aforesaid to the purposes before mentioned, which commissioners shall be impowered to call for, receive and dispose of the said monies in manner aforesaid, and to inspect the books of the severall collectors of the said revenues, and of all other duties from whence an equivalent may arise; and that the collectors and manadgers of the said revenues and duties be oblidge to give to the said commissioners subscribed [and] authentick abbreviats of the produce of such revenues and duties arising in their respective districts, and that the said commissioners shall have their office within the limits of Scotland, and shall in such office keep books containing accompts of the amount of the equivalents, and how the same shall have been disposed of from time to time, which may be inspected by any of the subjects who shall desire the samen.

APPENDIX 2

Scottish Parliamentary Voters and Their Interest in Natural Commodities

Commodity	Name of Parliamentary Member Voting Yes on Union (106)	Commodity	Name of Parliamentary Member Voting No on Union (69)
trade	James Graham, 1st Duke of Montrose	salt	James Hamilton, 4th Duke of Hamilton
	John Campbell, 2nd Duke of Argyll	salt and sheep	William Johnstone, 1st Marquess of Annandale
	John Hay, 2nd Marquess of Tweeddale	salt	Charles Hay, 13th Earl of Erroll
	William Kerr, 2nd Marquess of Lothian	salt	William Keith, 9th Earl Marischal
salt and coal	John Erskine, 22nd Earl of Mar		David Erskine, 9th Earl of Buchan
	John Gordon, 16th Earl of Sutherland	salt	Alexander Sinclair, 9th Earl of Caithness
Coal	John Hamilton-Leslie, 9th Earl of Rothes		John Fleming, 6th Earl of Wigtown
Herring	James Douglas, 11th Earl of Morton	salt	James Stewart, 5th Earl of Galloway
	William Cunningham, 12th Earl of Glencairn	salt	David Murray, 5th Viscount of Stormont
	James Hamilton, 6th Earl of Abercorn	salt	William Livingston, 3rd Viscount of Kilsyth
	John Ker, 1st Duke of Roxburghe	salt	William Fraser, 12th Lord Saltoun
Coal	Thomas Hamilton, 6th Earl of Haddington		Francis Sempill, 10th Lord Sempill
	John Maitland, 5th Earl of Lauderdale	salt	Charles Oliphant, 7th Lord Oliphant
	David Wemyss, 4th Earl of Wemyss	salt	John Elphinstone, 4th Lord Balmerino
	William Ramsay, 5th Earl of Dalhousie	salt	Walter Stuart, 6th Lord Blantyre
	James Ogilvy, 4th Earl of Findlater	salt	William Hamilton, 3rd Lord Bargany
Coal	David Leslie, 3rd Earl of Leven	salt	John Hamilton, 2nd Lord Belhaven and Stenton

oat/grain trade	David Carnegie, 4th Earl of Northesk	salt	Lord Colvill	
	Earl of Belcarras	salt	Patrick Kinnaird, 3rd Lord Kinnaird	
	Archibald Douglas, 1st Earl of Forfar		Sir John Lawder of Fountainhall	
	William Boyd, 3rd Earl of Kilmarnock	salt among others	Andrew Fletcher of Saltoun	
	John Keith, 1st Earl of Kintore	Salt	Sir Robert Sinclair, 3rd Baronet	
	Patrick Hume, 1st Earl of Marchmont		Sir Patrick Home of Rentoun	
	George Mackenzie, 1st Earl of Cromartie		Sir Gilbert Elliot of Minto	
	Archibald Primrose, 1st Earl of Rosebery		William Bayllie of Lamington	
	David Boyle, 1st Earl of Glasgow	salt	John Sinclair, younger, of Stevensone	
	Charles Hope, 1st Earl of Hopetoun		James Hamilton of Aikenhead	
	Henry Scott, 1st Earl of Deloraine	Salt	Mr. Alexander Fergusson of Isle	
	grain exports	Archibald Campbell, Earl of Illay	salt among others	Sir Hugh Cathcart of Carletoun
		William Hay, Viscount Dupplin	salt	John Brisbane, younger, of Bishoptoun
		William Forbes, 12th Lord Forbes	salt	Mr. William Cochrane of Kilmarnock
John Elphinstone, 8th Lord Elphinstone			Sir Humphray Colquhoun of Luss	
William Ross, 12th Lord Ross		linen	Sir John Houstoun of that ilk	
James Sandilands, 7th Lord Torphichen		salt	Robert Rollo of Powhouse	
Lord Fraser			Thomas Sharp of Houstoun	
George Ogilvy, 3rd Lord Banff		salt	John Murray of Strowan	
Alexander Murray, 4th Lord Elibank			Alexander Gordon of Pitlurg	
Kenneth Sutherland, 3rd Lord Duffus			John Forbes of Colloden	
Robert Rollo, 4th Lord Rollo			David Bethun of Balfour	
James Murray, Lord Philiphaugh			Major Henry Balfour of Dunboog	
Adam Cockburn, Lord Ormiston		salt	Mr. Thomas Hope of Rankeillor	

Coal	Sir Robert Dickson of Inverask	salt	Mr. Patrick Lyon of Auchterhouse
	William Nisbet of Dirlitoun	salt	Mr. James Carnagie of Phinhaven
cattle and sheep (marginally)	John Cockburn, younger, of Ormestoun	salt	David Graham, younger, of Fintrie
	Sir John Swintoun of that ilk		William Maxwell of Cardines
	Sir Alexander Campbell of Cessnock	salt	Alexander McKye of Palgown
	Sir William Kerr of Greenhead		James Sinclair of Stempster
	Archibald Douglas of Cavers		Sir Henry Innes, younger, of that ilk
	William Bennet of Grubbet	salt	Mr. George McKenzie of Inchcoulter
	Mr. John Murray of Bowhill		Robert Inglis
	Mr. John Pringle of Haining	salt and sheep	Alexander Robertson
Salt	William Morison of Prestongrange	sheep	Walter Stewart
	Alexander Horseburgh of that ilk		Hugh Montgomery
	George Baylie of Jerviswood	salt	Alexander Edgar
	Sir John Johnstoun of Westerhall	fish, land-crops, and salt	Alexander Duff
	William Dowglass of Dornock	salt	Francis Molison
	Mr. William Stewart of Castlestewart	sheep	Walter Scott
	Mr. John Stewart of Sorbie	salt	Robert Scott
salt among others	Mr. Francis Montgomery of Giffan	salt	Robert Kellie
salt among others	Mr. William Dalrymple of Glenmuir		John Hutchesone
	Mr. Robert Stewart of Tillicultrie	salt and sheep	Archibald Scheills
wool/linen	Sir Robert Pollock of that ilk	salt	Mr. John Lyon
	Mr. John Montgomery of Wrae	shyre opposed taxes and church	George Brodie
Grain	John Halden of Glenagies		George Spens
	Mongo Graham of Gorthie	salt	Sir David Cuningham
	Sir Thomas Burnet of Leyes		Mr. John Carruthers

	William Seton, younger, of Pitmedden	salt	George Home
	Alexander Grant, younger, of that ilk	landowner northern Scotland	John Bayne
	Sir William Mackenzie	salt	Mr. Robert Fraser
Landowner/merchant	Mr. Aeneas McLeod of Cadboll		
	Mr. John Campbell of Mammore		
	Sir James Campbell of Auchinbreck		
	James Campbell, younger, of Ardkinglass		
	Sir William Anstruther of that ilk		
	James Halyburton of Pitcurr		
	Alexander Abercrombie of Glassoch		
merchant (oats and salt)	Mr. James Dunbarr, younger, of Hemprigs		
Herring	Alexander Douglas of Eagleshay		
	Sir John Bruce, 2nd Baronet		
	John Scrimsour		
	Lieutenant Colonel John Areskine		
Sheep	John Mure		
sheep and trade	James Scott		
	Sir John Anstruther, 1st Baronet, of Anstruther		
	James Spittle		
	Mr. Patrick Moncrieff		
	Sir Andrew Home		
Coal	Sir Peter Halket		
Sheep	Sir James Smollet		
	Mr. William Carmichell		
Landowner	Mr. William Sutherland		
	Captain Daniel McLeod		
	Sir David Dalrymple, 1st Baronet		
	Sir Alexander Ogilvie		
Coal	Mr. John Clerk		
Landowner	John Ross		
	Hew Dalrymple, Lord North Berwick		

	Mr. Patrick Ogilvie (cattle and exports to Ireland)
	George Allardyce
	William Avis
	Mr. James Bethun
	Mr. Roderick McKenzie
Herring/fishing	John Urquhart
Sheep	Daniel Campbell
	Sir Robert Forbes
herring	Mr. Robert Dowglass
	Mr. Alexander Maitland
trade	Mr. George Dalrymple
	Mr. Charles Campbell

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