

Re-Settling Woes and Rebellions: The Role of *Irelands Naturall History*
in the Cromwellian Era

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ABSTRACT

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Irelands Naturall History, written by the Dutch physician Gerard Boate, is a key document in the history of science during the seventeenth century. Yet, scholars have undermined its significance in the Cromwellian resettlement of Ireland and its influence on colonial projects under the umbrella of ‘science’ during the 1650s. The interconnections between the advancement of the new learning during a period of political turmoil that began with the Irish rebellion of 1641 raises new questions for colonial narratives. Thus, re-examining the significance of *Irelands Naturall History* also raises new perspectives on the meaning of science during the Cromwellian reconquest of Ireland. From its initial composition to its legacy in the eighteenth century, *Irelands Naturall History* is a multi-faceted work that served many purposes – from a guide to a successful plantation to a source on the improvement of the Irish landscape.

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Introduction – Science and the Irish Question

In 1652, *Irelands Naturall History* – penned by the Dutch physician Gerard Boate – was published for the first time by Samuel Hartlib. The document, divided into chapters and sub-sections, is a compilation of Ireland’s various natural characteristics such as waterways, ports, and types of mountains among other environmental aspects. Although the composition of *Irelands Naturall History* is primarily attributed to Gerard Boate, his younger brother Arnold was an important contributor, providing all the details and descriptions relating to Ireland’s physical landscape. In fact, Gerard had never been to Ireland when he wrote his most famous work; instead, he relied on descriptions from his brother Arnold, and their friend Sir Richard Parsons.¹ In this way, *Irelands Naturall History* is a unique document – making it challenging to define its role on early modern Irish history.

Historians of science – particularly within the Irish context – present the development of scientific activity as a narrative in which intellectual continuity is a central issue. The debate between Theodore Hoppen and Toby Barnard is the foundation of scholarly research on science in Ireland: their debate was the first discussion on the influence of the Hartlib Circle and the Dublin Philosophical Society. Although they remain two of the very few academics to provide extensive research on the Hartlib circle and the Dublin Philosophical Society, there has been more recent scholarship that explores the impact of science in Ireland in the seventeenth century. Still, it is important to examine the Barnard-Hoppen debate to understand the variations in scholarly work on science in early modern Ireland. Toby Barnard, one of the most prominent early modern Irish historians, has maintained in many of his works that the founding of the Dublin Philosophical

¹ David Cabot, “Essential Texts in Irish Natural History”, in *Nature in Ireland: A Scientific and Cultural History*, eds. John Wilson Foster and Helena C.G. Chesney (Montreal & Kingston: McGill-Queen’s University Press, 1997), 472.

Society in 1683 as an official scientific institution was the product of an earlier phase of scientific activity: the Hartlib Circle.² From this standpoint, the publication of Boate's *Irelands Naturall History* under Samuel Hartlib complements this scholarly view. Hartlib's involvement in putting Boate's work through the press is simply perceived as another stepping stone in the development of science in Ireland leading up to the establishment of the Dublin Philosophical Society.

Hoppen, who was Barnard's main academic rival in the field, also agreed that the Dublin Philosophical Society was rooted in an earlier scientific tradition but argues that it was the Royal Society of London rather than the Hartlib Circle.³ Yet Hoppen maintained in his article, "The Dublin Philosophical Society and the New Learning in Ireland", that scientific activity in Ireland during the seventeenth century was minimal; he stated that it was "not until the foundation in 1683 of the Dublin Philosophical Society did Irish science achieve any sort of prominence or serious recognition."⁴ Without a doubt, the establishment of the Dublin Philosophical Society was a major development in Ireland's scientific narrative. In his book, *Improving Ireland: Projectors, Prophets and Profiteers, 1641-1786*, Barnard argued that science before the founding of the Dublin Philosophical Society was fragmented and informal.

On the other hand, Barnard noted that projects and scientific societies which had emerged post-1683 began a wave of improvement projects that were "the focus of civic activism and patriotic endeavour".⁵ This implies that scientific projects in Ireland during the 1650s did not advance natural history and experimental science the same way that the founding of the Dublin Philosophical Society would in the eighteenth century. These types of public works, which

² T. C. Barnard, "The Hartlib Circle and the Origins of the Dublin Philosophical Society", *Irish Historical Studies* 19, no. 73 (1974): 56-58.

³ K. Theodore Hoppen, "The Dublin Philosophical Society and the New Learning in Ireland", *Irish Historical Studies* 14, No. 54 (1964): 99, 102-103.

⁴ *Ibid.*, 99.

⁵ Toby Barnard, *Improving Ireland?: Projectors, Prophets and Profiteers, 1641-1786* (Dublin: Four Courts Press, 2008), 15.

dominated the social sphere in the late 1700s, were therefore a significant by-product of the institutionalization of science throughout Britain. In the same vein as Barnard's book on improvement, Paul Slack discusses how the gradual transition towards improvement culture between the sixteenth and eighteenth centuries shaped a distinct English society.⁶ Other historians, however, have noted the different variations of 'scientific' efforts in Ireland in parallel to the Hartlib Circle and the Dublin Philosophical Society. In the last chapter of his book titled *The Upstart Earl: A Study of the Social and Mental World of Robert Boyle, first Earl of Cork, 1566-1643*, Nicholas Canny argues that colonial efforts prior to the 1641 uprising shaped many works that emerged during the Cromwellian era. In fact, Canny underlines that the data gathered for the writing of *Ireland's Naturall History* was heavily grounded in the earlier wave of colonial efforts.⁷ In comparison with the Barnard-Hoppen debate, Canny's viewpoint is key in demonstrating that the beginnings of science in Ireland are not entirely limited to intellectual spheres but were also influenced by the politics of the seventeenth century.

Within the framework of continuity, the Barnard-Hoppen debate regarding the origins of scientific activity in Ireland establishes the foundational ground of this historiographical discussion. Overall, Hoppen and Barnard agree that the Dublin Philosophical Society was rooted in an earlier scientific tradition; the two scholars, however, have opposing views about which scientific tradition laid the ground for the establishment of the society – a disagreement that is tied to Ireland's political situation after the end of the English Civil Wars. Although there have not been many academics who correlated the rise of science with politics, Patrick Carroll uses this approach by merging the fields of history and sociology to analyze the development of states. In

⁶ Paul Slack, *The Invention of Improvement: Information and Material Progress in Seventeenth-Century England* (Oxford: Oxford University Press, 2015), 1-3.

⁷ Nicholas Canny, *The Upstart Earl: A Study of the Social and Mental World of Richard Boyle, first Earl of Cork, 1566-1643* (Cambridge: Cambridge University Press, 1982), 146.

Science, Culture, and Modern State Formation, he argues that public and social works – like the wave of improvement projects Ireland experienced in the late 1700s – is the driving force behind the creation of the *modern state*.⁸ As the concept of improvement dominated the socio-intellectual spheres of the early modern period, Carroll would argue that the emergence of scientific networks like the Hartlib Circle geared Ireland towards the socio-political progress it experienced in the late eighteenth-century.

With the establishment of the Dublin Philosophical Society as an official scientific institution in Ireland, the role of science and intellectual continuity remains a subject of debate among early modern historians. Still, science in Ireland is often understudied within the narrative of the ‘Scientific Revolution’ or within the larger framework of intellectual history. In contrast to major intellectual movements, such as what historians have labelled ‘French’ or ‘English’ enlightenments for example, Ireland has been characterized as a minor – or even absent for that matter – player in the scientific discourse of the seventeenth and eighteenth centuries.⁹

Since the study of Ireland remains heavily embedded within the larger category of British history, academics of the 1960s and 1970s have often overshadowed Ireland by attributing it a ‘secondary’ role within English history. Hence, scholarship on the history of science remains a fairly new field composed of a tight-knit community of scholars. Considering the completion of several fundamental projects under the Hartlib circle in the 1640s, such as the Boate brothers’ *Irelands Naturall History* and William Petty’s Down Survey, there remains an extensive amount of research that has yet to be done in that field. For this reason, it is essential for historians of

⁸ Patrick Carroll, *Science, Culture, and Modern State Formation* (Berkeley: University of California Press, 2006), 2-3, 9.

⁹ The term ‘Irish Enlightenment’ is not often used by intellectual and early modern historians. The absence of this term in Irish scholarship initiated my research project. There has been, however, a recent book by Michael Brown titled *The Irish Enlightenment* (Cambridge, MA: Harvard University Press, 2016). His work examines the various meanings of the term ‘enlightenment’ in different stages of Ireland’s political and cultural setting during the eighteenth century.

science to take an interest in seventeenth-century Ireland: not only would this broaden the discipline but it would also open discussions surrounding the complex meanings of colonialism – a theme that has shaped much of Ireland’s history until the twentieth century.

Hence, it is projects like Boate’s *Irelands Naturall History* that played a significant role in the growth of experimental science during the 1650s. In current historiography, the Boate brothers are depicted as minor intellectual figures who were simply additional members of the Hartlib circle – and therefore *Irelands Naturall History* is often presented only as a product of that environment. The lack of importance attributed to the Boates, among countless of other ‘minor’ scientific figures of the seventeenth century, leads historians of Ireland to overlook the value of such independent projects. The role of science in Ireland therefore needs more scholarly attention. The examination of seventeenth-century Irish intellectual life is fundamental to position Ireland within the larger historical narrative of the ‘Scientific Revolution’. More importantly, however, the rise of the new learning and the development of experimental science in Ireland provides valuable perspectives on the political and religious tensions that had remained problematic during the Irish Rebellion of 1641 and the Interregnum period, also known as the Cromwellian era.

Although early modern Irish scholarship often examines political and intellectual histories separately, scientific activity in Ireland during the seventeenth century is heavily embedded within militaristic and economic efforts – therefore tying the rise of the new learning in Ireland with the Cromwellian resettlement. By treating history of science and the political history of seventeenth-century Ireland separately, such individual historical narratives offer limited perspectives on the early modern period. Since scholarship on science in seventeenth-century Ireland is not in itself extensive, it becomes crucial for the early modern historian to correlate different branches of history to obtain a more comprehensive understanding of Ireland during this period. Jane

Ohlmeyer uses this approach when examining the political significance of Ireland in her edited volume titled *Political Thought in Seventeenth-Century Ireland: Kingdom or Colony*. In her introductory chapter, she surveys key Protestant writings about Ireland that shaped the colonial discourse of the 1600s to highlight how Ireland's cultural significance changed throughout the different political settings.¹⁰ Ohlmeyer's work is therefore an example of the important historical insight gained from the different perspectives she uses to examine the meanings and impact of colonial discourses on Ireland's socio-political spheres.

By examining the rise of science during the Cromwellian period, the question of British colonial policy inevitably arises. Many early modern British and Irish historians, such as Canny and Ohlmeyer (among many others), would agree with the following general statement: Ireland was a British colony during the seventeenth century. The historiographical debate in question, then, is not about the conquest of Ireland per se but rather about the methods and extent of British colonial policy – which are discussed at length in Canny's book, *Making Ireland British, 1580-1650*. By framing his study between 1580 and 1650, Canny presents the following argument: Edmund Spenser 'set the agenda' for British colonial policy that shaped Ireland's political and religious spheres throughout the seventeenth century, that reached its peak with the Cromwellian settlement during the 1650s.¹¹ By using this timeframe to demonstrate the continuity of colonial discourse throughout the seventeenth century, Canny argues that the implementation of British policy which aimed to transform Ireland into an Anglo-Protestant territory was a gradual, multi-phased project. For Canny, the different stages of settlement represent the institutionalization of colonial policy as a way of establishing a permanent British presence in Ireland. By building on

¹⁰ Jane Ohlmeyer, "Introduction: for God, king or country? Political thought and culture in seventeenth-century Ireland", in *Political Thought in Seventeenth-Century Ireland: Kingdom or Colony*, ed. Jane H. Ohlmeyer (Cambridge: Cambridge University Press, 2000), 1-3, 8-9.

¹¹ Nicholas Canny, *Making Ireland British, 1580-1650* (Oxford: Oxford University Press, 2001), ch.1.

the argument of political stability, Canny's point is significant because it suggests that the implementation of British colonial policy in Ireland was justified as a way of preventing turmoil – especially in the aftermath of the Irish Rebellion.

Although Canny provides a detailed study of British colonial settlement in Ireland, his book mainly focuses on the politics leading up to the Cromwellian period. Hence, we must turn to historians of science such as Hoppen and Barnard to draw parallels between the role of science and Ireland's political setting during the seventeenth century. Although Canny links the beginnings of science in Ireland to earlier colonial projects, most historians present these scientific activities, starting in the 1640s, as a movement which saw the rise of Baconian new learning through Hartlibian projects. In studies on the history of science during the seventeenth century, Samuel Hartlib and his circle's endeavours are fundamental in shaping the development of experimental natural history – especially in Ireland. Despite not being an official institution, the Hartlib circle was still a prominent scientific network that was responsible for the majority of projects seen in Ireland during the 1640s and 1650s. Moreover, the Hartlibians have been viewed by historians as advocates of the Baconian new learning, Protestant reformers that aimed transform Europe into a unified religious territory, and intellectuals who sought the advancement of science.¹²

Samuel Hartlib and the Universal Reformation: Studies in Intellectual Communication – a compilation of various essays on the Hartlib Circle – demonstrates how significant Hartlib and his peers were for the development of experimental science during the mid-1600s. In the introduction, scholars Mark Greengrass, Michael Leslie, and Timothy Raylor maintain: “this volume of essays does not try to look at Samuel Hartlib's world in terms of its longer-term significance to Restoration science but in itself and for its own sake”. These essays do so by tackling the themes

¹² Koji Yamamoto, “Reformation and the Distrust of the Projector in the Hartlib Circle”, *The Historical Journal* 55, no. 2 (2012): 376.

of “commitment to universal reform[ation] and the importance of ‘correspondency’ or human communication”.¹³ The essays in this book address these themes by examining Hartlib’s involvement in various projects throughout the 1640s and 50s; in his connections with intellectuals such as Comenius, John Durie, and Benjamin Worsley (among many others), each chapter offers an insight of Hartlib’s multi-faceted network and therefore highlights its significance within the development of seventeenth-century science.

The Hartlib also circle played a crucial part in colonial Ireland during the Cromwellian resettlement. Patricia Coughlan and Barnard’s essays – in the ‘improvement’ section of *Samuel Hartlib and the Universal Reformation* – discuss the role of the Hartlibians in Ireland under the larger theme of scientific advancement. Coughlan’s short chapter, “Natural History and Historical Nature: The Project of a Natural History of Ireland”, discusses the Boates’ *Irelands Naturall History* and the involvement of the Hartlib circle. Coughlan states that “the project of a natural history contained a genuine moment of enlightenment and constituted a real progress in the discussion of Ireland.” Yet, she further argues that *Irelands Naturall History* and the projects that followed under the Hartlib circle had become flawed due to each member’s personal interests.¹⁴ Coughlan’s main argument follows that of Barnard and Hoppen: scientific projects under the Hartlib circle *did* open a dialogue on the importance of Ireland during the Cromwellian resettlement, but also for scientific activity in the late seventeenth-century.

However, Coughlan’s primary focus is not exclusively on the Boate brothers; instead, she uses *Irelands Naturall History* as a starting point for her discussion of the Hartlib circle’s various

¹³ Mark Greengrass, Michael Leslie and Timothy Raylor, Introduction to *Samuel Hartlib and Universal Reformation: Studies in Intellectual Communication*, ed. Mark Greengrass, Michael Leslie and Timothy Raylor (Cambridge: Cambridge University Press, 1994), 13.

¹⁴ Patricia Coughlan, “Natural History and Historical Nature: The Project of a Natural History of Ireland, in *Samuel Hartlib and the Universal Reformation: Studies in Intellectual Communication*, eds. Mark Greengrass, Michael Leslie and Timothy Raylor (Cambridge: Cambridge University Press, 1994), 298.

projects in Ireland during the 1650s. Since Coughlan's academic work focuses on representation, language, and colonial discourse, she examines the Hartlibians' projects through this lens rather than looking at their significance from a *historical* point of view. Granted, Coughlan's discussion is useful but does not address the significance of *Irelands Naturall History* on its own terms. To understand the significance of Boate's work on seventeenth-century Irish politics, it is necessary to treat the document and its content as a natural history to see how this particular project differed from other similar writings on Ireland. Doing so therefore allows us to further understand the significance of *Irelands Naturall History* within the political framework of the 1641 Irish uprising and, subsequently, the Cromwellian resettlement. Coughlan is not the only academic to view the Boates as secondary figures within the narrative of science in Ireland during this period. In his book on the improvement of Ireland, Barnard also categorizes *Irelands Naturall History* as a project that was part of the Cromwellian resettlement – an early model for the colonial ventures that began from the mid-1650s to the late 1700s. Instead, Barnard focuses his study on the progression of improvement by examining the impact intellectuals such as William Petty and Richard Lawrence had on Ireland.

Despite the different approaches used by historians of science to discuss improvement in seventeenth-century Ireland, most scholars present improvement as a gradual development – a linear narrative in which we see a rise of scientific activity that is rooted in some earlier intellectual tradition. Hoppen, for instance, argued that the founding of the Dublin Philosophical Society was based on the Royal Society of London because of a crossover in membership. On the other hand, Barnard maintained that its establishment was the by-product of the Hartlib circle's scientific work

in Ireland in the 1650s.¹⁵ ¹⁶ The linear narrative is useful to understand the development of science in Ireland, but it limits the scope of understanding the complexity of the period from a holistic perspective. The rise of science in Ireland and the Cromwellian resettlement are significant chapters of early modern Irish history, yet academics have mainly treated them as separate fields.

The linear element of historical narratives is inevitable and is, without a doubt, useful. In this case, scholars are telling a story about the rise of science in Ireland in the seventeenth century during a period of political turmoil – and a linear narrative helps historians see how this came to be. Alternatively, it is problematic to *only* examine the development of science from a chronological viewpoint because it overlooks the intricate nature of the period. Thus, I present the following argument: to obtain a more thorough understanding of the role of science during the Cromwellian settlement in Ireland, it is necessary to examine the significance of Boates' *Irelands Naturall History* as a multi-faceted, scientific project that is a product of its respective environment. The Boate brothers are often represented as men of science whose work aimed to solidify the colonial structure in Ireland in the 1650s. And, as mentioned in this historiographical discussion, they are given a secondary role in current scholarship on science in early modern Ireland despite *Irelands Naturall History* being one of the first major works linked to the Hartlib circle.

My thesis therefore redefines the significance of the Boates' *Irelands Naturall History* within the framework of the Cromwellian settlement and science in Ireland. By examining the composition of the document by the Boate brothers and the involvement of the Hartlib circle in the publication process, I will explore how the purpose of the document changed during the latter.

¹⁵ K. Theodore Hopper, *The Common Scientist in the Seventeenth Century: A Study of the Dublin Philosophical Society, 1683-1708* (London: Routledge & Kegan Paul, 1970), 1-3, 10-15, 23-24.

¹⁶ Barnard, "The Hartlib Circle and the Origins of the Dublin Philosophical Society", 60-63.

By analyzing the Boates' discussion of Ireland's natural environment and landscape, the preface, and dedicatory epistle to Oliver Cromwell – which were added by Hartlib – I will compare and outline the colonial discourse to demonstrate how the publication turned *Irelands Naturall History* as a tool of empire.

My goal is to demonstrate the following: *Irelands Naturall History* is significant because it is a microcosm that represents a project that required cooperation of an intellectual network, and how each of them envisioned Ireland within a colonial framework. In other words, the composition of the document and its publication reflect the complexity of Ireland's shifting colonial history during the Cromwellian resettlement – as well as how science was used for that purpose. *Irelands Naturall History* is far more than an incomplete project on the Irish landscape. Instead, it is a complex work that has been overlooked by many early modern scholars since the 1950s. Boate's work is a multi-faceted project that is a product of the environment in which it was composed, published for the first time by the Hartlib circle; its 'rediscovery' and re-publication by Thomas Molyneux under the Dublin Philosophical Society in the 1700s highlight new changes made to the document that target a different audience, but also Irish society decades after the Cromwellian resettlement. Hence, the various stages and uses of *Irelands Naturall History* demonstrate how Ireland was perceived by this community of scholars – but also what they wanted the island to become – during each of these publications.

Lastly, I hope my thesis project to be a fruitful addition to the historiographical debates within the fields of seventeenth-century Ireland and history of science. By framing a thorough analysis of the Boates' project within Ireland's colonial framework, the Cromwellian reconquest, my goal is to highlight the multi-faceted nature of the document through the involvement of different

intellectual groups. I believe that my research offers a new perspective from how *Irelands Naturall History* has traditionally been presented in scholarly work on seventeenth-century science.

Chapter 1 – Lives of the Boates: From Leiden to Dublin

The Boate brothers were born to Christina van Loon and Godefroy de Boot in the Dutch town of Gorinchem. There is very little information available about the Boate family; their father Godefroy was an author and a soldier but no known writings survive.¹⁷ The Boate brothers enrolled at the University of Leiden first as arts students, but subsequently changed to the faculty of medicine. The university's curriculum and anatomical training, as well as the overall aims of the institution itself, set the trajectory for the future careers of the Boates as physicians and natural philosophers. The University of Leiden was established in 1575 as a Protestant institution. During a period in which the Netherlands revolted against Spain, the religious inclination of the university was crucial "for the political and cultural climate in what was to become the Republic of the United Provinces."¹⁸ The Dutch political setting, therefore, played a fundamental role in shaping the University of Leiden; "the point is that in a country at war, the University was to fill the need for an intellectual and spiritual centre on which the bidding nation could draw for its political leadership and religious autonomy."¹⁹ Although the Boate brothers did not become politicians, the values upon which the university was founded certainly shaped Leiden's curriculum, and respectively Gerard and Arnold's careers.

The medical training completed by the Boates was therefore part of an educational program aimed to improve Dutch political life – especially in the wake of the revolt against Spain. Leiden's

¹⁷ Elizabeth Baigent, "Boate, Gerard (1604-1650), in *Oxford Dictionary of National Biography* (Oxford: Oxford University Press, 2007). Accessed online September 18, 2018, <https://0-doi-org.mercury.concordia.ca/10.1093/ref:odnb/2740>. Gerard and Arnold were born in 1604 and 1606 respectively, and had three other siblings.

¹⁸ Theodoor Herman Lusingh Scheurleer and Guillaume Henri Marie Meyjes, *Leiden University in the Seventeenth Century: An Exchange of Learning* (Leiden: Brill, 1975), 1. The Dutch revolt against Spain's Catholic rule provided a socio-political context which shaped the educational values of the University of Leiden.

¹⁹ *Ibid.*, 1.

curriculum was rooted in renaissance humanism with a focus on the liberal arts, but also became “one of the most important seedbeds of experimental physical science.”²⁰ In addition to being taught both the *trivium* and the *quadrivium*, students learned the primary languages: Latin, Greek, and Hebrew. On the other hand, “botany and chemistry, key medical subjects, were absorbed into the faculty of medicine.”²¹ With a balance between classical humanistic studies and experimental science, Leiden’s academic training provided a well-rounded education for its students.

Since “the core subjects of philosophy were physical science and natural history”, Leiden offered space for its students to experiment – especially “by giving them a location of their own, a cabinet with instruments and a collection of specimens” – as a way of putting their learning in practice.²² The faculty of medicine, which included prominent figures such as Albert Kyper and Otto van Heurne, “ensured that the scientific education at Le[i]den was wide and excellent.”²³ Kyper, for instance, was a physicist whose teachings and publications were fundamental in challenging the scholastic views of the cosmos. Having lectured both at Leiden and the Illustre School at Breda in natural history and physics, Kyper was also appointed as “personal physician to the Prince of Orange” – a career path that mirrors Gerard Boate’s role as physician to the army in Ireland.²⁴ Moreover, the mathematical teachings of Rudolph Snellius, and later by his son Willebrord Snellius, were fundamental in adding new fields such as navigation and surveying to the Leiden’s curriculum of experimental science.²⁵ These teachings therefore provided the Boates

²⁰ Willem Otterspeer, “The University of Leiden: An Eclectic Institution”, *Early Science and Medicine* 6, no. 4 (2001): 325.

²¹ *Ibid.*, 326-327.

²² *Ibid.*, 331.

²³ S. Mendyk, “Gerard Boate and Ireland’s Natural History”, *The Royal Society of Antiquaries of Ireland* 115 (1985): 5.

²⁴ Edward G. Ruestow, *Physics at Seventeenth and Eighteenth-Century Leiden: Philosophy and the New Science in the University* (The Hague: Martinus Nijhoff, 1973), 39-40.

²⁵ Otterspreer, 330-331.

with a well-rounded education in natural history and medicine that was fundamental for the composition of *Ireland's Naturall History*, as well as their medical careers.

In addition to the university's interdisciplinary curriculum, Leiden became known for its famous anatomy theatre. The teaching of anatomy at Leiden University began under Pieter Pauw who had studied in Leiden, Paris, and Rostock. He worked at Rostock and Padua as a master presenter of anatomy until his appointment at Leiden, in 1589, as a professor for the faculty of medicine. The department of medicine was fairly small in its early beginnings, having only two appointed professors: Gerard de Bont and Johan van Heurne. The growth of the faculty occurred once Pauw was hired; having a diverse range of interests such as botany and rare objects, his experimental approach was a major contribution for the development of Leiden's medical faculty. However, it was Pauw's practical teaching of anatomy – especially with the building of the anatomy theatre – that allowed Leiden to become one of the most reputable universities in continental Europe in the seventeenth century.²⁶ Modelled after Padua University's amphitheatre, Pauw established a similar one at Leiden but larger in scale to accommodate the growing number of medical students. Pauw's medical reputation and his famous demonstrations were therefore fundamental for the growth of Leiden's anatomy theatre. Over a period of nineteen years, Pauw “dissected more than sixty human bodies” but also operated animals such as dogs and frogs.²⁷ As a result, the anatomy theatre became an important aspect of Leiden's faculty of medicine. By having a larger space for students to audit medical procedures, the anatomy theatre would accommodate longer and more thorough demonstrations of different practical approaches in their field.

²⁶Scheurleer, 217.

²⁷ Harold J. Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age* (New Haven: Yale University Press, 2007), 115.

The botanical garden was another feature of Leiden University that led to a growth in the study of natural and experimental science. With the rising interest in natural science, the idea of a botanical garden emerged under Justus Lipsius shortly after he was hired as a professor at Leiden. Lipsius viewed the botanical garden as a space that was necessary for the individual's intellectual growth – “a stoic view of the garden as a place of retreat and study.”²⁸ It was, however, under Carolus Clusius, a renowned botanist, that the garden became an integral part of the institution to develop the studies in botany. Following his appointment at Leiden, Clusius worked on expanding the garden to eventually include an approximate “total of fourteen hundred plantings [and] the inventory listed about 1,060 species.” Thus, the botanical garden not only “made possible the teaching of natural history” but also reflected the scientific shift towards practical and experimental research.²⁹ Within this academic setting, the Boates were taught a classical liberal arts education while gaining new medical and scientific approaches. Their early exposure to practical medicine and natural history during their years at Leiden therefore offered the Boate brothers a useful scientific foundation for their future projects.

It was this type of education which turned the Boate brothers into ideal ‘men of science’, as they later led successful careers both as physicians and natural historians. Having been academically trained as doctors, the Boates’ knowledge of natural science – which was presented in *Ireland's Naturall History* – demonstrates their expertise in a field other than medicine. In fact, “it is significant that this university, and the Dutch in general, were now beginning to attempt the systematic natural history of their equatorial colonies” during the early seventeenth century. The

²⁸ Ibid., 109-111. Lipsius was a humanist scholar whose political writings focused on stoicism, particularly the works of Seneca and Tacitus. See *(Un)Masking the Realities of Power: Justus Lipsius and the Dynamics of Political Writing in Early Modern Europe*, eds. Erik De Bom, Marijke Janssens, Tom Van Houdt and Jan Papy (Leiden: Brill, 2010).

²⁹ Ibid., 118-120. See Florike Egmond, *The World of Carolus Clusius: Natural History in the Making, 1550-1610*, (Abington: Routledge, 2016).

most famous example of these Dutch colonial expeditions is that of Jacobus Bontius in the Indies in 1627. Bontius' experiences in the West Indies as a physician eventually allowed him to pen several manuscripts on medicine and natural history in these Dutch colonial territories.³⁰

When considering the composition of *Irelands Natural History* by the Boates during the mid-1640s, Bontius' colonial writings are significant in two ways: first, it suggests that the Boate brothers were exposed to the practical use of natural history in a colonial setting during their studies at Leiden. Since Bontius had been a student at the university in 1612, it seems likely that his publications on medicine and natural history of the Indies would have been discussed at Leiden while the Boates were still students there. This exposure suggests that the study and use of practical science in a colonial environment was deemed useful during the first decade of the seventeenth century – something that could have influenced the Boates' future work in Ireland. Second, Bontius worked on his *On the Preservation of Health: or Observations on a sound way of life in the Indies in the form of a dialogue* with Andrew Durie. The latter was the “son of the famous ecumenical advocate Robert Durie” and had settled in the Netherlands as a result of his family's exile from Scotland. Having also studied at Leiden, Andrew Durie was hired by the VOC as a surgeon in the Indies.³¹ His work in the Dutch colonies and his contribution to Bontius' manuscript is significant because his brother, John Durie, penned the preface of *Irelands Naturall History* for its first publication in 1652. Thus, John Durie was exposed to colonial writing early in his life which undoubtedly shaped his views on Protestantism in Europe – especially in Ireland. From this

³⁰ Ibid., 191-197. Jacobus Bontius had ties with anatomy and natural history from early on in his life: he was the youngest son of Gerard de Bondt, Leiden's first professor in the faculty of medicine. After earning a doctorate degree from in medicine from Leiden, Bontius joined the Dutch East India Company – known as the VOC – to gain more opportunities abroad.

³¹ Ibid., 194-197.

standpoint, Leiden University was not only a major institution for the study of medicine and natural history, but it was also the hub for intellectual activity which created a diverse scientific network.

With this in mind, it becomes evident that the Boates' schooling at Leiden was an important period in their lives. Not only did the university's curriculum provide them with foundations for their work in medicine, the growing interest in experimental science among Europe's intellectual groups certainly exposed the Boates to the practical elements of natural history early on in their careers. After their graduation from Leiden, the Boate brothers followed different career paths. In 1630, Gerard and Arnold left the Netherlands and settled in London. Shortly after his move, Gerard was appointed as a physician to King Charles I, and he married Katherine Menning the following year.³² It is, however, during England's Wars of the Three Kingdoms that Gerard developed interests outside the medical field: Gerard Boate and his wife were among many investors who helped suppress the 1641 Irish rebellion.³³ The Adventurers' Act of 1642 promised investors Irish lands once the uprising had successfully been suppressed, which was an opportunity to gain territory for profit and settlement in the hopes of turning Ireland into a Protestant nation.³⁴ The older Boate had therefore established himself well during this period as a physician, but also turned his interest towards land ownership in Ireland. Gerard's curiosity towards experimental science outside of medicine could be tied to his academic training at Leiden, especially as Dutch natural scientists were publishing works on their colonies, but also to the political turmoil of the 1640s caused by the Irish uprising. Hence, Gerard's financial investment towards the suppression of the rebellion demonstrates his early interest in Ireland.

³² Baigent, *Oxford Dictionary of National Biography*.

³³ *Ibid.*

³⁴ Eamon Darcy, *The Irish Rebellion of 1641 and the Wars of the Three Kingdoms* (Suffolk: The Boydell Press, 2013), 120-122.

On the other hand, Arnold's stay in London was short-lived as a result of a dispute with the College of Physicians. The nature of the disagreement remains unknown; however, the "lack of a uniform system of licensing" in London – especially for non-English practitioners – could have been a factor. The membership of the College of Physicians was mainly composed "of fellows, candidates and licentiates who were admitted by examination."³⁵ Since the younger Boate had completed his medical training outside of London, it is possible that the college did not recognize Arnold's status as a physician and therefore could have prevented him from practicing medicine in London.

As a result of this disagreement, Arnold was subsequently hired as the personal physician to Robert Sidney, who was the second Earl of Leicester and later became the viceroy of Ireland. Although Sidney's initial connection to Boate is unknown, it seems probable that these ties would have been established during Robert's residence in the Netherlands. In fact, the Sidney family had been living in the Netherlands since the late 1590s. Robert's father, the first Earl of Leicester, was appointed as a governor of Flushing – one of the many English towns in the Netherlands. However, the younger Sidney moved to the Netherlands in the mid-1600s. After the formerly English towns of Brill and Flushing were returned to the United Provinces, their "garrisons were reconstituted into a regiment under Sidney's command and retained in Dutch service."³⁶ With Sidney's residence in the Netherlands overlapping with the Boate's time at Leiden, it seems possible that they began corresponding during this period.

³⁵ Andrew Wear, *Knowledge and Practice in English Medicine, 1550-1680* (Cambridge: Cambridge University Press, 2000), 27.

³⁶ Ian Atherton, "Sidney, Robert, second earl of Leicester (1595-1677)", in *Oxford Dictionary of National Biography* (Oxford: Oxford University Press, 2008). Accessed online on September 18, 2018. <https://0-doi-org.mercury.concordia.ca/10.1093/ref:odnb/25525>

In 1636, Arnold moved to Ireland. Besides his connection to Sidney, Boate had scholarly ties with James Ussher, archbishop of Armagh. There, the younger Boate was hired as a physician to Ussher himself, as well as to the Lord Deputy of Ireland, Thomas Wentworth (the first Earl of Strafford). The younger Boate was eventually hired as the primary physician to the army based in Leinster.³⁷ With Ussher being Boate's primary patron, their connection was the most significant when examining Arnold's life and work in Ireland, especially in relation to the composition of *Ireland's Natural History*. Ussher had established himself as one of Ireland's leading intellectuals during the seventeenth century. His prominence as an intellectual and a churchman in Ireland would have certainly helped Boate become known among the Anglo-Protestant elite. Thus, connections with important political figures such as Sidney, Wentworth and Ussher introduced Boate to Ireland's colonial setting and its governing elite.

Arnold's move to Ireland was a turning point in his career as a physician, but even more so as a natural scientist. By remaining under the patronage of James Ussher, the Archbishop of Armagh, he was able to establish himself as a prominent figure in Ireland. His ties with Ussher led to his hiring as surgeon-general for the English army in Ireland during the Rebellion of 1641, and this experience led him to publish *A Remonstrance on Diverse Remarkable Passages by our Army* in 1642.³⁸ This short document contains a series of brief letters written by Arnold Boate to his older brother. The document highlights the military expeditions led primarily by Sir Charles Coote, a New English political administrator who was appointed as the governor of Dublin in 1641, against Irish rebels during the year following the rebellion.³⁹ Certainly, these short letters offer an insight

³⁷ Coughlan, *Samuel Hartlib and Universal Reformation*, 299.

³⁸ Elizabethanne Boran, "Boate, Arnold (1606–1653)," in *Oxford Dictionary of National Biography*, (Oxford: Oxford University Press, 2004). Accessed online September 18, 2018. <https://0-doi-org.mercury.concordia.ca/10.1093/ref:odnb/2739>

³⁹ Pádraig Lenihan, "Coote, Sir Charles (d. 1642) first baronet", in *Oxford Dictionary of National Biography*, (Oxford: Oxford University Press, 2004). Accessed online March 16, 2019. <https://0-doi-org.mercury.concordia.ca/10.1093/ref:odnb/6239>

on English militaristic efforts to secure several Irish towns during the uprising. More importantly, however, this document shows that the brothers became implicated in Irish politics under English governance once permanently settled in their respective countries. Although Arnold was much more involved in the turmoil caused by the Rebellion, his correspondence with Gerard suggests that both brothers had an interest in the Protestant cause in Ireland – especially as the older Boate would be granted land once the rebellion had been suppressed.

Arnold's marriage further "strengthened his links with the Protestant Dublin gentry." On December 25th 1642, he married Margaret Dongan, whose father – Thomas Dungan – was Justice of the Court of Common Pleas in Dublin.⁴⁰ Boate's father-in-law attended Lincoln's Inn in 1615, one of the four inns of the court where students studied law.⁴¹ These inns were a hub for lawyers in the making where they received extensive legal training, but also "where practising lawyers resided when they were in London during the four legal terms."⁴² However, Thomas Dungan "was expelled for recusancy" the following year which suggests that he was initially a Catholic. Dungan was re-admitted to Lincoln's Inn only "on proof of his conformity" following his marriage to Grace Palmer in 1621, who hailed from an established family in Nottinghamshire.⁴³ It seems likely that Dungan's marriage ties with the Palmer family was the proof required seeing that they were probably Protestant.

Thomas Dungan's political career reached its peak in the 1640s: he was recommended in 1644 to the English court of King's Bench by the first Duke of Ormonde, James Butler. Dungan served as second justice to the King's Bench in Ireland and was a member of the English House of Lords

⁴⁰ Boran, *Oxford Dictionary of National Biography*.

⁴¹ Francis Elrington Ball, *The Judges in Ireland, 1221-1921, Vol. 1* (London: John Murray, 1926), 340.

⁴² Christopher W. Brooks, *Law, Politics, and Society in Early Modern England* (Cambridge: Cambridge University Press, 2008), 18.

⁴³ Ball, 340.

in 1646.⁴⁴ His last political engagement was during the Cromwellian reconquest of Ireland: Dungan was sent to Ulster in 1651 to act as justice for the province's parliament as part of the legal reforms which occurred under English rule. By centralizing legal administrative affairs from Dublin, judges were assigned cases in other provinces to ensure judicial control.⁴⁵ The extent to which Boate's marriage to the Dungan family helped him reinforce his ties with the Protestant elite is unclear. However, it is evident that Arnold's in-laws had valuable connections to the most important families in Ireland which helped him infiltrate this circle. After the death of his wife in 1651, Boate published a document titled *The Character of a Trulie Vertuous and Pious Woman, as it hath been acted by Mistris Margaret Dungan* – a memoir highlighting his wife and their decade-long marriage.⁴⁶ Boate discusses his wife's lineage on both her maternal and paternal sides but stresses the importance of the father's connections to the Irish elite by stating:

The Dungans (of which house her father, Thomas Dungan, Justice of the Court of Common Pleas at Dublin, is a younger brother) beeing of the auncientest and best gentry of Ireland, and allied not onelie with most of the prime gentry of the Pale, as the Talbots, the Rocheforts, the Ashpooles, the Wogans, etc. but even with several Noble houses.⁴⁷

By emphasizing how influential the Dungans were among Ireland's Protestant gentry, Boate was, without a doubt, aware that his marriage strengthened his own position within this circle. Through his ties with the Anglo-Irish elite and his involvement with the English army following the 1641 Irish Rebellion, Arnold was exposed to the administrative desire to turn make Ireland a Protestant

⁴⁴ Ibid., 340. James Butler was a Catholic, Anglo-Irish statesman who was part of one of the most powerful families in Ireland during the early modern period. See *The Dukes of Ormonde, 1610-1745*, eds. Toby Barnard and Jane Fenlon (Woodbridge: The Boydell Press, 2000).

⁴⁵ Toby Barnard, *Cromwellian Ireland: English Government and Reform in Ireland, 1649-1660* (Oxford: Oxford University Press, 1975), 256-257.

⁴⁶ Boran, *Oxford Dictionary of National Biography*.

⁴⁷ Arnold Boate, *The Character of a Trulie Vertuous and Pious Woman*, (Paris: Ste. Maucroy, 1651), 83-84. Accessed online on April 3, 2018, <http://name.umdl.umich.edu/A28492.0001.001>

territory as he served a colonial elite during this period. Thus, Arnold's interest in Ireland was a product of his involvement with this particular political circle.

The Irish Rebellion of 1641 was a turning point in British politics, but it also shaped the last decade of Boate brothers' careers. For Arnold, "the aftermath of the Irish rising of 1641 had forced [him] to leave Ireland in 1644." After his departure, Arnold spent five months in London with his brother before permanently settling in Paris.⁴⁸ The idea of composing a natural history of Ireland occurred while the Boates were reunited in London. In Arnold's letter to Samuel Hartlib, included in the introductory section of *Irelands Naturall History*, the younger Boate explained that "great part of that conversation, which [Gerard] and I had together during those six months, was spent reasoning about Ireland, and about all manner of particulars concerning the Morall and Civill, but chiefly the Naturall History of the Same."⁴⁹ Their interest in moral and natural history is reflective of the era of exploration and the colonial literature it generated.

The work of José de Acosta, a Spanish Jesuit who travelled to Peru and Mexico during missionary expeditions to the Americas, is strikingly similar to *Irelands Naturall History*. Published in 1590, Acosta's *Natural and Moral History of the Indies* is divided in seven sub-books and chapters that focus on a particular aspect of the Indies – both in relation to the natural landscape and the cultural habits of native inhabitants.⁵⁰ Although Boate's work was published later, the similarities in content, format, and purpose highlight Acosta's influence as a researcher on natural history. Thus, the Boates could have encountered the *Natural and Moral History of the Indies* while studying at Leiden.

⁴⁸ Boran, *Oxford Dictionary of National Biography*.

⁴⁹ Arnold Boate to Samuel Hartlib, in *Irelands Naturall History*.

⁵⁰ Walter D. Mignolo, introduction to *Natural and Moral History of the Indies*, ed. Jane E. Mangan, trans. by Frances López-Morillas (Durham: Duke University Press, 2002), xvii-xx.

The Boates' ties to the Protestant elite was key in shaping their role as intellectuals for the development of *Irelands Naturall History* not only as a scientific text – but also as a guide for planters. Arnold's relationship to James Ussher was perhaps the most significant in connecting with Hartlib. Ussher was a proponent of clerical reform who was primarily “admired for his firm anti-Catholicism”, which was key in consolidating Ireland as a Protestant territory. Because of their shared interest in Protestant ecclesiastical reform, Ussher's connection with John Durie was perhaps how Arnold became associated with Samuel Hartlib.⁵¹ Durie and Hartlib were not only friends but had also collaborated on a number of projects, including *Irelands Naturall History*.⁵² The exact year in which Arnold Boate and Hartlib began corresponding is undocumented. However, they worked together as early as 1641 when they published a co-authored document titled *Philosophia Naturalis Reformata* in which they challenged Aristotle's scholastic philosophy.⁵³ Additionally, the Boates' medical services to the Earl of Strafford and William Parsons provided connections – who were lord lieutenant and surveyor of Ireland respectively – to the most powerful colonial figures in Ireland.⁵⁴ These political and intellectual ties were therefore key in helping the Boates become known among the Irish Protestant elite that ultimately helped publish *Irelands Naturall History*.

Gerard Boate began writing *Irelands Naturall History* in 1645 and the document was completed that same year. However, the book was not published immediately after its completion.⁵⁵ The way in which the document was written by the older Boate is intriguing and unusual. Although Gerard wrote *Irelands Naturall History*, he had never been to Ireland to gather

⁵¹ Barnard, *Cromwellian Ireland*, 91-92, 214-215.

⁵² Mark Greengrass, “Samuel Hartlib, (1600-1662)”, in *Oxford Dictionary of National Biography* (Oxford: Oxford University Press, 2004). Accessed online March 16, 2019. <https://doi-org.lib-ezproxy.concordia.ca/10.1093/ref:odnb/12500>.

⁵³ Coughlan, *Samuel Hartlib and Intellectual Reformation*, 300.

⁵⁴ Barnard, *Cromwellian Ireland*, 214-215.

⁵⁵ *Ibid.*, 214-215.

the data himself. Instead, he relied on information provided to him primarily by his brother Arnold due to his “detailed knowledge of Ireland based on eight years’ service as army physician-general there”. Gerard also used information provided by former English planters; Sir William Parsons – who was appointed surveyor-general of Ireland during the Elizabethan period – and his son Richard both offered Boate data on the Irish landscape.⁵⁶ Sir William Parsons’ colonial agenda as surveyor-general and his input towards *Irelands Naturall History* are two significant factors to consider in relation to Boate’s work as a product of the 1641 rebellion. During his time surveyor-general, Parsons imposed a strict policy to promote English settlement: “he appears to have firmly believed in the need to entrench Protestantism in Ireland through vigorous plantation” in order to ensure English control over the island.⁵⁷

Despite his political administration in Ireland falling under criticism, Parsons maintained his rigid colonial views during the rebellion. Having gained large sections of Irish land before the outbreak of the 1641 uprising, Parsons wanted to ensure English Protestant control of the majority of Catholic territory. His anti-Catholic sentiments were evident as he continuously aimed to create animosity between Irish Catholics and the Old English settlers – who also adhered to the old faith – “with the hoped-for result of having Catholic proprietors removed altogether.”⁵⁸ Parsons’ colonial intentions remained long after his career as surveyor-general was over. As a contributor to *Irelands Naturall History*, it is inconceivable to separate Parsons’ plantation efforts from the information he relayed to the Boates during the composition of the document.

⁵⁶ Mendyk, 6.

⁵⁷ Sean Kelsey, “Parsons, Sir William (1570-1650), in *Oxford Dictionary of National Biography* (Oxford: Oxford University Press, 2004), accessed online April 27, 2019. <https://doi-org.lib-ezproxy.concordia.ca/10.1093/ref.odnb/21476>.

⁵⁸ Coughlan, *Samuel Hartlib and Universal Reformation*, 300.

Shortly after the completion of *Irelands Naturall History*, Gerard became a licentiate of the College of Physicans in 1646, and his medical practice became more prominent in London. In July 1647, “Boate’s Irish connections secured him appointment as physician to the army in Ireland, but the disturbances there delayed his arrival until towards the end of 1649.” Shortly after his arrival, however, Gerard died in 1650.⁵⁹ Although very little is known about Gerard’s family, it is significant to note that his wife – Katherine Menning – received “more than 1000 acres of land in co. Tipperary” in 1667 as a repayment for her and Boate’s investment towards the suppression of the Irish Rebellion. Prior to the 1641 uprising, these territories were owned by Irish Catholic families.⁶⁰ The redistribution of these lands to Protestants in the aftermath of the rebellion is significant because it represents the consolidation of their socio-political power. With this in mind, Gerard’s support to suppress the uprising could have been fueled by profitable gains such as land grants and a prominent career.

After Gerard’s death, his papers were acquired by Samuel Hartlib – a German-born intelligencer who was based in London. Hartlib spent most of his life in London. There, he settled among the English gentry and developed a network of intellectuals through which he maintained regular correspondences that expanded outside of England.⁶¹ Hartlib’s connections played a significant role in the publication of *Irelands Naturall History*. Hartlib’s interest in the project led him to seek the younger Boate’s permission and involvement to get the work published. Arnold edited the tome himself, and Hartlib published *Irelands Naturall History* for the first time in 1652.⁶²

⁵⁹ Barnard, *Cromwellian Ireland*, 214.

⁶⁰ Baigent, *Oxford Dictionary of National Biography*.

⁶¹ Barnard, *Cromwellian Ireland*, 216.

⁶² Baigent, *Oxford Dictionary of National Biography*.

Despite having left Ireland for Paris after the Irish Rebellion, Arnold remained involved with the English and Irish scientific communities. By keeping his ties with the Hartlib circle, the younger Boate occupied an important place within this “wide-ranging group of scholars who corresponded on scientific, religious, and political issues.” However, it was Arnold’s position as an intellectual middleman between Ussher and Hartlib that strengthened his role “in the consolidation of an Irish wing of the Hartlib circle.”⁶³ The younger Boate’s previous position as army-physician and his contribution to the composition of *Ireland’s Natural History* were therefore valuable assets for the Hartlibians’ scientific research on the island. With his extensive knowledge on Ireland’s landscape – especially in the provinces of Leinster and Ulster – Samuel Hartlib considered Arnold the ideal candidate to complete his brother’s project. The younger Boate was set to undertake the composition of three additional volumes as per Hartlib’s request, but he died in Paris in 1653 before beginning his task.⁶⁴

⁶³ Boran, *Oxford Dictionary of National Biography*.

⁶⁴ *Ibid.*

Chapter 2 – The Hartlibian Method: Publishing Irelands Naturall History

Hartlib's publication of *Irelands Naturall History* is just as important as its composition.

The following additions made to the document alter the initial purpose of *Irelands Naturall History*: the cover page, the dedication to Oliver Cromwell and Charles Fleetwood, and a letter from Arnold Boate to Samuel Hartlib. These three parts are significant for two reasons: first, it offers an insight on who was involved in both the composition and publication of the document – especially considering there is very little information available about the Boates. Second, these introductory sections serve as a contextual framework for the different themes discussed pertaining to the natural history of Ireland. The additions made by the Hartlib circle during the publication process alter the original meaning and intention of the work as a natural and moral history of Ireland. Instead, the document becomes a product of the political climate of the 1650s that aimed to guide the new plantation efforts under the Cromwellian resettlement.

These additions are significant because they attributed a goal to the project beyond it being merely a compilation of Ireland's environmental landscape. By examining those involved in the publication of the document and to whom *Irelands Naturall History* was dedicated, the colonial implications become more apparent in the additions made by Hartlib and his peers. Under the principle of improvement, these textual integrations offer an insight on how each contributor – particularly Hartlib and Durie – envisioned a more prosperous Ireland. The individual agendas embedded in the preface and dedicatory epistle therefore complicate Ireland's colonial narrative during the 1650s.

My analysis begins with the correspondence between the younger Boate brother, Arnold, and Samuel Hartlib regarding the publication of *Irelands Naturall History*. Arnold Boate addressed a

letter to Hartlib, dated 1650, which was added by the latter as the final introductory section of the document. This letter is significant because it remains the only *firsthand* document discussing the intention behind the composition of Gerard Boate's work. In his letter, the younger Boate began by addressing Hartlib's interest in *Irelands Naturall History*:

I am very glad to understand by you, that my brother's work on the Naturall History of Ireland, is not only not lost, as I greatly feared it was, and that you have found it in perusing those books and papers of his, which he had left behind him at London; but that you are going to print, and have already contracted about it: by the doing whereof I am fully persuaded, that you will gain both credit and contentment, and that those shall no wayes be losers, who will bee at the charges of doing the same.⁶⁵

From the outset, Arnold Boate expressed relief that his brother's works had been traced by Hartlib and set for publication, implying that these documents were valuable sources. What is most striking, however, is how strongly Boate emphasized that would benefit from the publication of *Irelands Naturall History*. Gaining both recognition and satisfaction from putting Boate's project through the press suggests that Hartlib viewed *Irelands Naturall History* as worthy of publication. In fact, Hartlib began receiving a hefty pension in 1649 for his efforts on the promotion of the new learning.⁶⁶ Publishing Boate's work during the resettlement of Ireland would not only have strengthened Hartlib's ties with Cromwell, but it would have also secured his status as one of the most prominent intelligencers. More importantly, the project would legitimize an amended plantation model in Ireland through the concept of improvement.

In the following sections, Arnold provided a short summary of what *Irelands Naturall History* entailed, its composition, and what the Boate brothers envisioned the completed project to achieve. First, the younger Boate maintained that "the work is excellent in [its] kind, as not only full of

⁶⁵ Arnold Boate to Samuel Hartlib, in *Irelands Naturall History*.

⁶⁶ Greengrass, *Oxford Dictionary of National Biography*.

truth and certainty, but written with much judgement, order, [and] exactness.” Boate’s emphasis on the accuracy of their descriptions underlines the revisionist approach he adopts in contrast to previous similar works on Ireland’s natural history, such as Gerald of Wales’ *Topographia Hibernica*, which would have been considered outdated at this point. He further added that “to make it a compleat Naturall History, there should be joyned to that which my Brother hath gone through, two Books more, one of all kind of Plants, and the other of all sorts of living Creatures.”⁶⁷ Arnold therefore confirmed that his brother intended *Irelands Naturall History* as a multi-volume project to encompass the various environmental aspects of the territory – with the final goal being a comprehensive anthology on Ireland. The Boates, then, seemed to have been primarily interested in Ireland’s landscape and natural features from an empirical standpoint.

However, Gerard’s death in 1650 was not the reason the project came to a halt after the composition of the first book, as is often assumed. The younger Boate explained that his brother set aside the writing of the subsequent volumes because he deemed the subject to have been already explored by previous scholars, such as Richard Stanihurst and William Camden, and was therefore of no interest to anyone beyond himself. Arnold stated that if his older brother “had found that he had not lost his labour on what was done already, [and] that it had met with a greatfull acceptance abroad, such as might have encouraged him to take further paines about the perfecting of it.”⁶⁸ This remark is significant because Gerard Boate’s death is perceived by early modern Irish historians – and historians of science – as the reason for the incompleteness of *Irelands Naturall History*. Instead, discontinuing the project after the composition of the first volume was a decision taken voluntarily by the older Boate. Seeing that the first and only book from the proposed multi-volume project

⁶⁷ Arnold Boate to Samuel Hartlib, in *Irelands Naturall History*.

⁶⁸ *Ibid.*

was written in 1645 and not published by the Boates themselves at the time, *Irelands Naturall History* appears to have been a personal project rather than a commissioned one.

Yet, the narrative is more complicated. Arnold also stated that his brother “was resolved to have also joined a Fourth book to those other Three, concerning the Natives of Ireland, and their old Fashions, Lawes, ad Customes; as likewise the great paines taken by the English, ever since the Conquest, for to civilize them, and to improve the Countrie.”⁶⁹ This is significant because it suggests that, in addition to being a revised compilation of the island’s environmental characteristics, *Irelands Naturall History* which aimed to transform the Irish Catholic majority since they were viewed as rebellious. The possible addition of this fourth volume – or simply its mention – changes the meaning of the document in several ways. This final tome would have tied the entire project by highlighting the relationship between the Irish natives and their environment. The order of all four volumes, as envisioned by the Boates, suggests that thorough knowledge of Ireland’s natural features and environment was necessary before turning to a colonial agenda to ‘civilize’ the Irish. Thus, the final volume of *Irelands Naturall History* would have completed the project in a holistic manner.

Moreover, Arnold explained that his brother’s desire to compose *Irelands Naturall History* was driven by an inherent curiosity to expand his knowledge. What triggered the writing process, however, was the 1641 uprising and its impact on Gerard and his acquaintances. Arnold noted that following the events of the Irish rebellion, his older brother “[was] led thereto by his own interest, having ventured great part of his estate upon the escheated lands there, according to the Severall Acts made by the King and Parliament in that behalf.”⁷⁰ With Gerard having financially invested in the suppression of the Irish rebellion after its outbreak, the composition of *Irelands Naturall*

⁶⁹ Ibid.

⁷⁰ Ibid.

History in the years following seems to have been aimed at understanding the land they would obtain after the end of uprising. Hence, the longstanding improvement of Ireland began with compiling thorough details about the territory.

Gerard proceeded to gather facts about Ireland by consulting his younger brother, along with Sir William Parsons and his son Richard.⁷¹ A letter to Hartlib from an unknown author – who is almost certainly Arnold Boate – dated 27 October 1652 points out that the printer of *Irelands Naturall History* mistakenly added Richard Parsons as a contributor to the project. The letter states: “and in my letter, to passe ouer others of lesser moment, they haue put Sir Richard Parsons, for Sir Philip Perciuall; which monstrous deviation as I cannot imagine how they could possiblie stumble upon it, so I beseech you to correct it with the pen in all your copies, and to intreate the printer, that he would doe the same in all the rest.”⁷² Philip Perceval, an English politician who owned land in Ireland, was part of the leading Protestant elite due to his political affiliations with Thomas Wentworth and by marrying into the Ussher family.⁷³ As Arnold was connected to both Wentworth and James Ussher, his association to Perceval is therefore likely – making the latter’s contributions to *Irelands Naturall History* an important addition to what historians currently know about the sources from which Gerard Boate gathered his information. The letter addressed to Hartlib in 1652 also points out a mistake on the cover page. The sender notes: “I am sorrie, *that* Irelads Naturall historie hath been printed with so manie Errata, whereof the verie title-page is not free, in having

⁷¹ Ibid.

⁷² [M.M.?] to Samuel Hartlib, 27 October, 1652, in *The Hartlib Papers*, <https://www.dhi.ac.uk>. It is highly probable that this correspondence is from Arnold Boate as he makes references to ‘my letter’ that is included in *Irelands Naturall History*. His firm request to correct Richard Parsons’ to Philip Perceval in copies that were already in circulation, and all future prints, only strengthens this correlation and the offense taken to this mistake. Additionally, the handwriting of this letter is the same when compared to other letters written by Arnold Boate. (Credit to Dr. McCormick for bringing this letter to my attention and making this connection during one of our meetings.)

⁷³ Patrick Little, Perceval, Sir Philip (1605–1647), in *Oxford Dictionary of National Biography* (Oxford: Oxford University Press, 2004). Accessed online March 19, 2019, <https://doi-org.lib-ezproxy.concordia.ca/10.1093/ref.odnb/21913>.

put way for wayes.”⁷⁴ With the high probability that Arnold was the sender of this letter, his displeasure to see mistakes on the print of *Irelands Naturall History* highlights how important he considered this project to be and his desire for a seamless finalized project.

The cover page sets the tone in presenting *Irelands Naturall History* as a book intended for a new plantation model. The cover page is divided into two ‘sections’: a brief outline of the content of the book, and credits to Gerard Boate and Samuel Hartlib. Under the title, the book is characterized as “being a true and ample description of [Ireland’s] situation, greatness, shape, and nature, [...] and of its fruitful parts and profitable grounds, with several way[s] of manuring and improving the same.”⁷⁵ From the outset, the reader is made aware that Boate’s work is a thorough and factually accurate study of Ireland. The data based on empirical observation and their detailed first-hand descriptions is what distinguished *Irelands Naturall History* from previous writings on Ireland. Their work corrected outdated observations made by an earlier generation of scholars. With improvement being the overall goal, Hartlib’s emphasis on ‘truth’ is significant as he tied empirical research with profitability.

The subsequent sections examine “the nature and temperature of [Ireland’s] air and season, and what diseases it is free from, or subject unto [,] conducting to the advancement of navigation, husbandry, and other profitable arts and professions.”⁷⁶ The theme of improvement is once again apparent in the correlation between the condition of Ireland – particularly its seasons, temperature, and [diseases] – and the progress made in the fields of ‘profitable professions’ such as agriculture and navigation. As opposed to other regional territorial trends, Irish population had declined prior

⁷⁴ [M.M.?] to Samuel Hartlib, 27 October, 1652.

⁷⁵ Gerard Boate, cover page to *Irelands Naturall History* (London: John Wright, 1652).

⁷⁶ Ibid.

to the year 1500 – “which meant that much of the land in Ireland was underutilized.”⁷⁷ By centralizing the value of Irish land, Hartlib created a parallel between the advancement of navigation and profitable professions: making Irish territory more accessible through advanced agricultural measures was key in leading to its commercial growth.

It is, however, the subsequent statement – printed at the very end of the cover page – that explicitly encourages a colonial agenda: “For the Common Good of Ireland, and more especially, for the benefit of the Adventurers and Planters therein.”⁷⁸ *Irelands Naturall History* thus targeted planters as its audience, and investors like Gerard Boate who had financed the suppression of the Irish rebellion and were to be granted the lands they were promised. From the outset, the intended message was clear: improvement was necessary for “the common good of Ireland.”⁷⁹ This could only be achieved through a successful plantation settlement and *Irelands Naturall History* was presented as a tool to help settlers with the conquest of the island. On the other hand, there is an evident discrepancy between the content of the document solely as a natural history of Ireland and the colonial tone expressed in the introductory pages, beginning with the front page. These textual differences suggest that the Boates did not solely intend this book to be a tool for English colonialism during the time of its composition. Hartlib’s role as the main publisher – and his persistence to publish the work – therefore implies that *Irelands Naturall History* was turned into a tool of empire through of his involvement.

In each of these sections, the purposes tied to Ireland’s natural landscape offer an insight in how the Boates and Hartlib each perceived the document. For the Boates, *Irelands Naturall History* was primarily a private project. It was meant as a revised and up to date document on

⁷⁷ John Patrick Montaña, *The Roots of English Colonialism in Ireland*, (Cambridge: Cambridge University Press, 2011), 13.

⁷⁸ Cover page to *Irelands Naturall History*.

⁷⁹ Ibid.

Ireland's natural environment promoting the advancement of learning, which *could* be put to practical use. If the Boate brothers had successfully written the additional books mentioned by Arnold in his letter to Hartlib, state motives could have then been clearer. Since this is not the case, the textual additions made during the publication by Samuel Hartlib are the only sources promoting English plantations in Ireland.

The title page is followed is by a dedication to Oliver Cromwell and Charles Fleetwood. Fleetwood's political and military career during the civil wars was a significant step in his eventual appointment as Commander-in-chief in Ireland. Fleetwood's role in parliament during the political crisis of the 1640s showed his reliability to Cromwell early on by leading cavalries against Royalists. In the following years, Fleetwood eventually accompanied Cromwell in his military campaign in Scotland, where he was assigned the role of "lieutenant general of horse."⁸⁰ Those years therefore built an important political association between both men, especially during Cromwell's Irish campaign. On July 10th 1652, Cromwell – as captain general of the Commonwealth and its army – "commissioned [Fleetwood] as commander-in-chief in Ireland, and the following month he was added to the parliamentary commissioners responsible for the civil government of the island."⁸¹ The military campaigns led by Cromwell, both in Scotland and in Ireland, therefore reflected his colonial aspirations. With the publication of *Irelands Naturall History* coinciding with Fleetwood's appointment as commander-in-chief, the colonial push from Hartlib and his circle – especially Durie – to promote English plantations becomes evident.

⁸⁰ Peter Reese, *Cromwell's Masterstroke: The Battle of Dunbar 1650* (Barnsley: Pen & Sword Books Ltd., 2006), 33.

⁸¹ Toby Barnard, "Charles Fleetwood, appointed Lord Fleetwood under the Protectorate (1618-1692)", in *Oxford Dictionary of National Biography* (Oxford: Oxford University Press, 2008). Accessed online May 2, 2018, <https://doi-org.lib-ezproxy.concordia.ca/10.1093/ref:odnb/9684>. Fleetwood was also Oliver Cromwell's son-in-law, having married his daughter Bridget.

The dedicatory epistle, although signed by Samuel Hartlib in *Irelands Naturall History*, was in fact penned by John Durie – the prolific writer whose career was primarily focused on the unification of various branches of Protestantism across Europe.⁸² The epistle begins by defining the relationship between nature and individual spiritual reformation through improvement. In the epistle, Durie argued that “[...] the effect of Gods Wisdom and Power in Nature, as they are the Objects of our Reasonable facultie, they have a bodily being and subsistence in us: and as the Wisdom of God doth many wayes manifest it self, not only in Spirituall but also in Outward and Bodily things.”⁸³ From this standpoint, Durie underlines that there is a practical aspect to spirituality that individuals must apply to reach the highest level of human learning – as providence was visible in nature. Durie’s emphasis on reason and the physical realm therefore represents a new form of spirituality that parallels the growing importance of science during the seventeenth century.

In the dedication to *Irelands Naturall History*, Durie further emphasized the correlation between spiritual and practical belief by presenting these notions within a concrete project: the plantation of Ireland. Durie’s colonial focus is reflected in his emphasis on the importance of natural history for improvement – especially for the advancement of trade, commerce and husbandry. To further highlight the importance of knowledge, Durie argued:

[...] amongst all these parts of Learning, which relate to a Society, I can conceive none more profitable in Nature, than that of Husbandry. For whether we reflect upon the first settlement of a Plantation, to prosper it, or upon the wealth of a Nation[n] that is planted, to increase it, this is the Head spring of al the native Commerce & Trading, which may bee set afoot therein by any way whatsoever. Now to advance Husbandry either in the production and the perfectio[n] of earthly benefits, or in the management thereof by way of Trading, I know

⁸² Coughlan, *Samuel Hartlib and Universal Reformation*, 302.

⁸³ Dedicatory Epistle to *Irelands Naturall History*, A3.

nothing more usefull, than to have the knowledge of the Natural History of each Nation advanced & perfected.⁸⁴

Within the framework of improvement – especially in relation to *Irelands Naturall History* – this passage is significant because demonstrates that there is practicality in the application of Boate’s work. By centralizing the importance of natural history for the advancement of society, Durie presented this relationship as an interdependent one: without knowledge first, societies cannot reach their highest potential through the progress of commerce and husbandry. Durie dedicatory letter therefore frames *Irelands Naturall History* as the first step towards a successful plantation settlement under Cromwell, and highlights the providential advantage of establishing a united Protestant territory.

Durie therefore viewed Boate’s work as a tool by which to advance societies both spiritually and scientifically. Moreover, he considered those involved in the project – especially Hartlib as he was the publisher and his closest friend – God’s instruments “to set forward one part of the preparatives of his great Work [...], the other part, which is the Advancement of Spirituall and Natural sanctified Knowledge.” He further added that this project, under Hartlib’s influence, would lead Ireland to become more prosperous by maximizing the greater good of its society.⁸⁵ Durie’s view presented Ireland as the ideal ground to experiment with new scientific methods while simultaneously ‘helping’ Irish society thrive. The publication of Boate’s work is therefore presented as an innovative project which would pave the way for the overall improvement of Ireland.

The last segment of Durie’s dedication to Cromwell, however, adds a twist to the usual historiographical depiction of *Irelands Naturall History*. Durie noted the following: “I lookt also

⁸⁴ Ibid.

⁸⁵ Ibid., A4.

somewhat upon the hopeful appearance of Replanting *Ireland* shortly, not only by the Adventurers, but happily by the calling in of exiled *Bohemians* and other Protestants also, and happily by the invitation of some well affected out of the *Low Countries*.”⁸⁶ This is significant because Durie envisioned the reconquest of Ireland and its settlement as a project within a larger European religious struggle. The inclusion of Bohemians and Protestant exiles, along with adventurers, highlights Durie’s utopian view of what Ireland should become: a unified Protestant territory.

⁸⁶ *Ibid.*, A5.

Chapter 3 – The Boate Effect: Revisiting the Irish Landscape

The Boate brothers intended *Irelands Naturall History* to be a multi-volume work – one that would begin with a complete and thorough study of Ireland’s natural landscape, and would have ended in a tome on the Irish natives and how to civilize them. From this standpoint, the Boates had intended for their book to be both a natural and moral history of Ireland. Studying Ireland’s landscape was a useful and necessary tool for its improvement, but ultimately to have been able to exploit it in the most profitable ways. In turn, the betterment of Ireland’s environment would have contributed to the advancement its society. By promoting improvement and demonstrating the positive outcomes associated with using land effectively, Irish inhabitants would adopt the working ethos promoted by Protestant planters. Thus, Irish natives would more become skillful and obedient – as opposed to the ‘wild mannerisms’ they were characterized by. The correlation between natural history and morality in Boate’s work was therefore a new colonial approach. The first chapter is one of the most important ones in the document as it outlines Ireland’s geographical landscape, and introduces the beginnings of English settlement.

The Boates begin by examining Ireland’s geography in relation to nearby territories – mainly Wales and England – as well as other territories outside of the British Isles region. In the first chapter, titled *Of the situation, shape, and greatness of Ireland*, Boate writes: “Ireland, [...] lyeth in the North-West Ocean, having on the West side no land nearer than America, or the West-Indies, and thereof that part, which above *Nova francia* and *Canada* running North-ward, hath of the English received the name New-Britain, but of other Nations before of *Terra Laboratoris*.”⁸⁷ From the outset, the Boates tie their research to a colonial framework: in these opening lines, they

⁸⁷ Boate, *Irelands Naturall History*, 1.

demonstrate an awareness of territories beyond continental Europe and Britain that were colonies. This shows that the Boates were both interested and knowledgeable about colonies that were outside the Dutch scope. By using Ireland as their main point of reference for their research, the Boate brothers were therefore able to draw parallels and comparisons with some of the colonies mentioned in their opening lines. Such colonial comparisons could demonstrate Ireland's unique character as a plantation, especially in regards to its close socio-political relationship with England. Although colonial motives were evident in the policies implemented in Ireland, it was never referred to explicitly as a colony – but rather as a plantation settlement. Additionally, these parallels also distinguish *Ireland's Naturall History* as a different type of discourse on natural history, one that encompasses information on other similar territories.

Furthermore, Boate expands the first chapter by turning to the geographical divisions of Ireland into provinces – first by providing a brief history of the English Pale. Gerard Boate writes:

The English at the first conquest, under the reign of Henry the second, having within a litle time conquered great part of Ireland, did afterwards, in the space of not very many yeares, make themselves masters of almost all the rest, having expelled the natives (called the Wild Irish, because that in all manner of wildness they may bee compared with the most barbarous nations of the earth).⁸⁸

Boate's knowledge of the Pale is significant for two main reasons: first, it underlines a longstanding tradition of English presence in Ireland which began in the twelfth century. Second, the description of the Irish as 'wild' and 'barbarous' – in addition to their expulsion from the Pale – represents English settlement as the only civilized part of Ireland. These depictions of the native Irish echo Edmund Spenser's *View of the present state of Ireland*. Written in 1596 but only published in 1633, he argues for a strict military conquest of Ireland. Spenser viewed "the weak point of the Irish polity [as] the Old English, who were once English but had temporized with the

⁸⁸ Ibid., 7.

Irish enemy.”⁸⁹ For Spenser, the affiliation of the Old English with the native Irish was a cultural problem and an early example of a failed plantation. The depiction of Irish inhabitants as uncivil was therefore a way for Spenser to differentiate the English from their counterparts. Moreover, Boate’s discussion of the Pale highlights his aim for *Irelands Naturall History* to be both a natural and moral history which draws on previous English writings on Ireland. For the author, English settlement is synonymous with an orderly society. With the Pale being an example of English territorial control, Boate offers a comparative view by depicting this settlement as an improved part of Ireland. From this standpoint, the author presents a significant insight of what Ireland could become under English governance by giving the Pale as an example of early socio-political reform.

The establishment of the English Pale was a product of the Anglo-Norman invasion of Ireland in 1169. While this initial settlement did not lead to a total control of the land per se, it did however change the political structure of the territory: “it had established an English colony and an English administration on Irish soil, and the claim of the English crown to lordship over the whole island.”⁹⁰ Thus, the significance of the Pale is multifold – especially within the historical framework of Irish colonialism. As the region became distinct from the rest of the island, it highlighted the legislative and cultural differences between the two groups: the Irish natives and the English settlers. With the establishment of the Pale, the Anglo-Norman invasion therefore began a discourse of conquest that paved the way for the Cromwellian resettlement of Ireland nearly five centuries later.

Yet, the cultural differences that distinguished the settlers of the Pale from the native Irish soon began to fade. Boate mentions that internal differences between settlers led to the weakening of

⁸⁹ Raymond Gillespie, *Seventeenth-Century Ireland: Making Ireland Modern* (Dublin: Gill & Macmillan Ltd., 2006), 106-107.

⁹⁰ T.W. Moody, introduction to *A New History of Ireland, Vol III, Early Modern Ireland 1534-1691*, eds. T.W. Moody, F.X. Martin, F.J. Byrne (Oxford: Oxford University Press, 2009), x.

English control in the Pale. In turn, the Irish natives regained some authority over the region. Boate explains that settlers began “joining themselves with the Irish, [and] took upon them their wild fashions and their language” – resulting in a decline in English territory.⁹¹ Although the Anglo-Norman invasion marked the beginning of English settlement and legislation in Ireland, these initial settlers were Catholic. With Catholicism being the common factor between the early settlers and the Irish, their integration among the natives was perhaps inevitable for English administration. This change is significant for Boate as it demonstrated a failed colonial attempt at keeping Ireland under England’s administration: not only did the English government lose authority and a considerable amount of land, their settlers gave up their ‘civil’ traditions to align themselves with the wild-natured Irish.

The Tudor conquest of Ireland during the sixteenth century highlighted the importance of this episode and served as a lesson for English administration. The Tudors understood that English settlements in Ireland needed to be Protestant – especially within the framework of the Reformation – to avoid another instance of assimilation. Although the Elizabethan settlement is not the primary focus of my study, it is important to note that it was during her reign that “the discovery of the New World fired the imagination of Englishmen, so Ireland appeared in somewhat the same light.”⁹² This ideology transitioned into the early 1600s under the first Stuart monarch, with “King *James* [and] his coming to the Crown of England, the whole Iland was reduced under the obedience and government of the English Lawes, and replenished with English and Scotch Colonies.”⁹³ The plantation of Ulster therefore became a project in which lands were confiscated from Irish Catholics and redistributed to English and Scottish settlers. The project “was a highly

⁹¹ *Irelands Naturall History*, 7-8.

⁹² M. Perceval-Maxwell, *The Outbreak of the Irish Rebellion* (Montreal & Kingston: McGill-Queen’s University Press, 1994), 6.

⁹³ *Irelands Naturall History*, 7-8. Boate’s mention of the ‘Scotch colonies’ refers to the plantation of Ulster.

innovative one, concentrating as it did as much on social engineering as on the redistribution of land.”⁹⁴ Thus, James I viewed these Scottish settlements as a way to consolidate his power in Ireland while turning it into a Protestant territory.

The establishment of these colonies reshuffled Ireland and the Pale’s social structures once again: the settlers became known as the ‘New English’, distinguishing them from their previous counterparts who were Catholic.⁹⁵ From this standpoint, the implementation of these settlements was a ‘revised’ plantation policy that was designed to strengthen the English and Protestant presence in Ireland – but more importantly to avoid the integration of these new settlers with the native Irish. In that sense, this plantation policy met the goal of keeping Irish Catholics separate from the new Protestant settlers; “whereas the Old English were probably the most cohesive political group in Ireland”, the New English presented themselves as a superior social group who rarely associated with the Irish.⁹⁶ The disparity between the Old and New English therefore re-defined Ireland’s socio-cultural structure by creating a hierarchy in which the latter was at the top.

This change heightened tensions between the Old and New English, eventually leading to the outbreak of the 1641 Irish Rebellion. The uprising was a product of two main interconnected factors: religion and socio-political inequalities between these two groups. As they were given confiscated lands, the New English held most political offices – a important factor in consolidating their status as the elite of Irish society – since being part the administration was profoundly tied to land ownership.⁹⁷ These new socio-cultural structures therefore set the tone for the years leading up to the rebellion of 1641.

⁹⁴ Gillespie, *Seventeenth-Century Ireland*, 47-49.

⁹⁵ Andrew Carpenter, introduction to *Verse in English from Tudor and Stuart Ireland*, ed. Andrew Carpenter (Cork: Cork University Press, 2003), 5-6. For a more thorough distinction of these terms, see full introduction in this source.

⁹⁶ Perceval-Maxwell, 14-15.

⁹⁷ Hugh F. Kearney, *Strafford in Ireland, 1633-1641: A Study in Absolutism* (Cambridge: Cambridge University Press, 1989), 8.

Tensions further intensified once Sir Thomas Wentworth was appointed as Ireland's Lord Deputy in 1632. To understand which political approach to take during his governance, he composed a discourse titled *A Survey of the Government in Ireland*. Because he "was the first viceroy in the seventeenth century to have no Irish connections before his appointment, [...] he needed to inform himself on the country and its customs." Wentworth's work was influenced by John Davies's 1612 treatise discussing the various difficulties of conquering Ireland, titled *A discovery of the true causes why Ireland never entirely subdued*.⁹⁸ By reading previous discourses on Ireland, Wentworth wanted to avoid mistakes that had been made during previous English administration. His challenge was to "delegate authority without either losing control of it or putting too much discretionary power in the hands of subordinates." With the Ulster plantation and the Pale serving as examples, Wentworth concluded that land ownership was key to holding any legal and administrative role in Ireland.⁹⁹ In this manner, Wentworth tightened his colonial stance to ensure a successful plantation campaign – therefore turning Ireland into an Anglo-Protestant territory.

From a colonial standpoint, the 1641 uprising was a defining moment that highlighted the weaknesses of the plantation settlements that had been implemented under James I. The violent episode was perceived as a popular rebellion led by the Irish who were "motivated by local conditions [which] stemmed from economic and social pressures." English settlers were attacked, their land plundered, and many were killed during the unrest. There were, of course, different

⁹⁸ Gillespie, 93-94. Sean Kelsey, "Sir John Davies (bap. 1569- d.1626)", *Oxford Dictionary of National Biography* (Oxford: Oxford University Press, 2008). Accessed online February 3, 2019, <https://doi-org.lib-ezproxy.concordia.ca/10.1093/ref:odnb/7245>. Sir John Davies was an English poet and lawyer who served as Attorney General of Ireland in the early 1600s. During his tenure, Davies was a proponent of the militaristic conquest of Ireland and the social reform by eliminating Gaelic involvement in Irish administration. For more on Davies's involvement in Ireland, see H. S. Pawlisch, *Sir John Davies and the Conquest of Ireland: A Study in Legal Imperialism* (Cambridge: Cambridge University Press, 1985).

⁹⁹ Gillespie, 95-97.

degrees of participation in the uprising but they were all rooted in the relationships between the Irish (and Old English) and the New English settlers.¹⁰⁰ Hence, the rebellion not only changed the socio-political climate of the three kingdoms but also served as an indicator of necessary change in Ireland's plantation policy.

It is necessary to contextualize the social and political setting leading up to the 1641 Rebellion to understand Boate's approach when writing *Irelands Naturall History*. As imposed plantation settlements led to political turmoil during the Irish uprising, it was clear that this policy had not been effective. Although Boate's work might not provide an 'explicit' colonial approach, he examined Ireland from a different angle: the improvement of its land and people. The combination of failed plantation settlements and the rebellion of 1641 indicated that Ireland needed to be dealt with in a new manner.

Irelands Naturall History therefore allowed the Boate brothers to rethink the ways in which the island had previously been depicted and planted. By beginning the work with a brief history leading up to Ireland in the wake of the rebellion, the first chapter of *Irelands Naturall History* set tone for the entire project. By dividing his work in chapters and sub-sections dedicated to particular aspects of Ireland's landscape allowed Boate to provide an in-depth description for each one. More importantly, he does so by drawing on an older generation of writers who composed works on the natural and moral history of Ireland such as Gerald of Wales, William Camden, Richard Stanihurst, and John Davies.¹⁰¹ While these authors' works influenced *Irelands Naturall History*, Boate was able to distinguish his project from these earlier works.

¹⁰⁰ M. Perceval-Maxwell, 227-228. See source for a more detailed account the unfolding of the rebellion.

¹⁰¹ Gerald of Wales was a clergyman of Welsh and Norman descent who composed Ireland's first natural history in 1187 titled *Topographia Hibernica*. William Camden was an English historian and poet whose work, the *Britannica*, was a major project of the Elizabethan period. The work, published in 1586, was an extensive survey of England and Ireland's geography. Richard Stanihurst was an Irish scholar whose project, *De rebus in Hibernia gestis*, was published in 1584 in Antwerp. Stanihurst's work focused on mapping Ireland's topography. For a more detailed background on these authors, see their entries in the *Oxford Dictionary of National Biography*.

He introduces these authors for the first time in the sixth chapter, titled *Of the nature of the Irish-Sea, and of the Tides which go in the same*, in which Boate focuses on the accessibility of the island through navigation. In his characterization of the Irish Sea, Boate explains that the waves are not as dangerous as Gerald of Wales and Stanihurst had described in their writings. Boate notes that Stanihurst revised the *Topographia Hibernica* to conclude that “*the Irish-Sea is quiet enough, except by highwindes it is stirred, so as not only in the summer, but even in the midst of winter people do pass it to & fro*” – although at a high risk. Boate agrees with this view but maintains that “the same happenth as well upon other seas, who are all subject to the disaster of tempests and shipwracks.”¹⁰² This passage is significant for two main reasons: first, it not only demonstrates that Boate had researched previous writings on Ireland’s natural history but that there was longstanding tradition of these works. Thus, every new project about the natural history of Ireland built itself on an earlier work, as we see with Stanihurst referencing Gerald of Wales. It also demonstrates a difference in perspectives between authors on how they understood the the Irish landscape.

Within this literary tradition, *Irelands Naturall History* emerged as a revised study which aimed to dismiss outdated facts about both the island’s environment and its inhabitants. In chapter 7, *Of the Springs and Fountains, item the Brooks and Rivelets of Ireland*, Boate discusses water springs that Irish natives believed cured diseases. These convictions were a product of Gerald of Wales’s descriptions in the *Topographia Hibernica*, which Boate perceived as imaginary as no other record confirmed such statements. Boate therefore concluded that “that good man hath been deceived herein by his credulity, as in innumerable other things, the which being evidently untrue

¹⁰² *Irelands Naturall History*, 49.

and fictitious.”¹⁰³ By highlighting the absence of evidence in the *Topographia Hibernica*, Boate’s revisionist approach frames Ireland within a narrative of scientific advancement.

Furthermore, Boate uses this chapter to underline the relationship between Ireland’s landscape and its inhabitants in the way it was presented in the *Topographia Hibernica*. Regarding the miraculous springs mentioned in the work, Boate explains that the Irish natives believed the claims made by Gerard of Wales to be true. Yet, Boate maintains that “experience doth shew, that those vertues are not found in the Springs themselves, but onely in the vain imagination of the superstitious people.”¹⁰⁴ This demonstrates that the behaviour of the Irish natives was conditioned by the ways in which they understood and perceived their land, based on older perceptions of Ireland such as those of Gerald of Wales. These superstitious beliefs therefore reflected the ‘wild’ nature of the Irish and their irrational approach to land – which explained why Ireland had remained economically and socially stagnant despite several attempts at improvement through plantation settlements. From this standpoint, Boate used empirical observations in *Irelands Naturall History* to dismiss outdated views for the betterment of the island.

The theme of land improvement – and alternatively its waste – is raised in chapter 9 to demonstrate Ireland’s economic potential. In discussing the loughs and lakes of Ireland, Boate points out that they are abundant and profitable with their location being a prime opportunity to establish settlements. Boate highlights that English and Scottish settlers recognized these economic opportunities by setting up “several fair Plantations, and would have done more, if it had not been hindered by that horrible Rebellion of the bloody Irish.”¹⁰⁵ The contrasting relationship, as presented by Boate, between the planters and the native Irish towards land is

¹⁰³ Ibid., 56.

¹⁰⁴ Ibid., 55-56.

¹⁰⁵ Ibid., 71-72.

significant for two main reasons. First, it suggests that the Irish saw no value in their land and therefore did not try to profit from it; by destroying the English plantations during the uprising, it demonstrated that they did not consider these settlements worthwhile irrespective of the political crisis of 1641.

Second, Boate's negative depiction of the native Irish parallels the representations made by earlier natural history writers. By underlining that the English plantations "which were already built have been destroyed by those Barbarians", Boate highlights the difference between these two groups: the English settlers are presented as civil and progressive in the ways they efficiently built settlements with the goal of improving Ireland.¹⁰⁶ On the other hand, the representation of the Irish as undisciplined and irrational – as reflected during the 1641 Rebellion – validated the idea that Ireland could only prosper under English administration. From Boate's viewpoint, the relationship between land and people is interdependent as one cannot improve without the other. The destruction of the English plantations was therefore an indicator for Boate that this relationship needed to be re-evaluated by identifying the cause of Ireland's lack of progress. By surveying Ireland's landscape to highlight the possibilities of improvement, Boate's writing also emphasizes the need to morally reform its native inhabitants.

Boate elaborates on Ireland's economic potential in chapter 10 titled *Of the nature and condition of the Land, both for the outward Shape, and for the internall qualities and fruitfulness*. By surveying the different types of landscape, Boate concludes that "the Lands of this lland, as of most all other Countryes, are of a various kind & fashion" – therefore making it just as profitable as other nearby nations. He explains that although in some parts the land is too coarse to cultivate, most regions are capable to sustain the growth of crops. Moreover, Boate points out that previous

¹⁰⁶ Ibid.

authors such as Stanihurst and Gerald of Wales also identified that Irish soil was naturally profitable with a mention of improvement of labour. Boate notes: “This country is happy in very rich ground, and plentiful increase of grains, the fields beeing fertill in corn, and the mountains full of cattell.”¹⁰⁷ This is significant from both a scientific and colonial standpoint. First, the empirical approach used by Boate confirms the findings of previous authors regarding the viability of Irish land. Hence, the detailed data supporting these descriptions demonstrated the various ways by which the island could be profitable.

Second, Boate’s findings highlight Ireland’s economic importance to the Three Kingdoms – thus justifying England’s persistence to establish plantations there. Having already noted that English settlers recognized the agricultural potential of Irish lands, Boate elaborates on how planters improved the environment in which they built their homes. For instance, he explains that settlers introduced larger cattle from England to increase animal population and, in turn, develop agricultural practices for the betterment of these lands. Boate associated such improvements with civility and advancement but points out, once again, that the Irish rebellion ended such beneficial changes. He notes that the native Irish “endeavoured quite to extinguish the memory of [the English], and of all the civility and good things by them introduced amongst that wild Nation” during the 1641 uprising.¹⁰⁸ Hence, Boate demonstrates that Ireland was on the path to economic advancement prior to the rebellion through the agricultural changes instituted by English planters.

Chapter 14, *Originall of the Bogs in Ireland; and the manner of Draining them, practiced there by the English Inhabitants*, is another example in which Boate discusses the improvements made to the land by English settlers. Bogs were a major hindrance for the economic growth of Ireland as it wasted many acres that could have been used for agriculture. Boate notes that bogs should

¹⁰⁷ Ibid., 78, 87-88.

¹⁰⁸ Ibid., 89.

have been drained to reduce unused land and make these territories more accessible. Instead, he explains that the Irish natives “let daily more & more of their good land grow boggy through their carelessness, wherby also most of the Bogs at first were caused.”¹⁰⁹ For Boate, the inefficiency and negligence that the Irish displayed towards their land is therefore an important indicator that social reform was also necessary for agricultural advancement.

In contrast, Boate highlights that English planters were efficient in draining bogs during their settlement to eliminate wasted lands. After “having considered the nature of the Bogs, and how possible it was to reduce many of them unto good land”, the settlers transformed several acres to profitable territory. From this viewpoint, the English are portrayed by Boate as “introducers of all good things in Ireland” – a significant distinction from the ‘barbaric’ nature of the Irish inhabitants which caused social and political instability during the rebellion of 1641.¹¹⁰ These differences in character were therefore important in emphasizing that environmental improvement was tied a civil society. In addition to revising previous writings about Ireland’s natural landscape, Boate’s work *also* highlighted the nation’s moral history up until the rebellion. By demonstrating the agricultural advancement that occurred under English administration prior to 1641 – as well as the destruction caused because of the uprising – the author implies that the Irish must conform to their colonial counterparts for the island to reach its highest potential.

However, Boate only viewed the last plantation efforts – under the New English – to be successful in improving Ireland. In discussing the discovery of mines in chapter 16, he explains that the Old English never had the opportunity to explore the many aspects of Ireland’s land due to wars between themselves or native inhabitants. As the Old English eventually adopted Irish culture, they became equally perceived as barbaric which, in turn, reflected the failure of the first

¹⁰⁹ Ibid., 108, 113.

¹¹⁰ Ibid., 114.

conquest of Ireland. On the other hand, Boate argues that “all the mines which to this day are found in Ireland, have been discovered (at least as for to make any use of them) by the New-English” that began during the Elizabethan conquest of Ireland. The author also points out that had these mines been discovered earlier by the native inhabitants, Ireland would have already become a source of wealth.¹¹¹ These comparisons demonstrate, once again, that the resourcefulness of the new English planters began their improvement efforts as soon as they established their settlements.

Boate’s discussion on the discovery of mines, “which were hidden in the bowels”, is another example that presents the Elizabethan conquest as a successful plantation model that only deteriorated as a result of the 1641 uprising. From this viewpoint, a similar plantation settlement – if instituted in wake of the rebellion – could be effective in controlling Ireland by improving it. Boate’s work therefore emphasizes that the Irish landscape is rich in resources that need to be effectively exploited in order for it to prosper. By surveying the moral history of the Irish people in relation to the various aspects of their land, Boate continuously observes their ‘barbarous’ nature as the main reason behind the island’s economic stagnation. Thus, the moral conquest of the Irish should be addressed first in order to establish a successful English plantation.

Boate develops this viewpoint in the last two chapters of his work by discussing the quality of life in Ireland. Chapter 23, *Of the Healthfullness of Ireland, and what Sicknesses it is free from and subject unto*, focuses on the how the environmental landscape shaped its inhabitants’ living conditions. He notes that “although Ireland is obnoxious to excessive wetness, nevertheless it is very wholesome for the habitation of Men”, allowing them a long life just as other neighbouring territories. These favourable conditions are further highlighted as Boate mentions that many severe diseases are minimal in the Irish environment – giving the plague as an example – in comparison

¹¹¹ Ibid., 122-124.

to the high degree of illnesses in densely populated countries like England.¹¹² The health advantages outlined by Boate therefore validates Ireland as an ideal colonial setting: a commercially viable territory with an advantageous quality of life.

Moreover, Boate underlines another gain of settling in Ireland by noting that its inhabitants have no health advantages over their colonial counterparts. He states that new settlers are immune to the same illnesses as the Irish people as long as the environment remains free of diseases. Alternatively, Boate explains that “natives, born and brought up in Ireland, coming into other countries, are found to be subject unto those diseases as well as other people.”¹¹³ This demonstrates that planters could easily establish settlements without factoring in an ‘adaptation’ period, as opposed to the tropical climate of the Caribbean colonies, for example. Boate implied – in a very subtle manner – that Irish natives could be relocated to neighbouring territories seeing that they are portrayed as a hindrance to the commercial progress of Ireland throughout the entirety of his work. From this standpoint, Boate’s perception of a plantation model post-rebellion is an Ireland that is settled by foreign newcomers who understand the potential of these lands.

Boate frames the last section of chapter 24 – the final chapter of *Irelands Naturall History* – in the uprising of 1641. By discussing the causes that led to the death of many English soldiers while fighting the rebels, he relies on the information his younger brother Arnold provided while serving as physician-general to the army. He explains that soldiers did not fall ill because of diseases but rather due to the damp conditions in which they fought. The older Boate concludes his work by stating that “without doubt in any other countrie of the world, where all the same causes did concurre, and where an Armie indured the likehard-ship, the same effects, if not worse, would follow”. He ends the work by adding that “in this behalf the Land it self is not at all to be

¹¹² Ibid., 177-178.

¹¹³ Ibid., 179.

blamed.”¹¹⁴ Thus, this last statement solidifies the argument made by Boate throughout *Irelands Naturall History*: the nation’s problems are tied to the uncivil nature of the Irish natives.

Although the argument made about the Irish is not in itself new, as they have been characterized as a ‘barbarous’ nation by previous authors, Boate’s project offers a new take on natural history and plantation policy. As the previous colonial program culminated in the rebellion of 1641, the in-depth natural and moral survey presented in *Irelands Naturall History* underlines the need to address the social composition of the territory first. In other words, it is by replacing the native Irish – either through complete assimilation or exile – with skillful planters before Ireland can experience socio-economic improvement.

These plans were already in the works by the late 1640s. As Catholic lands were to be granted to Protestants once political order was restored after the wars, it was crucial to for the English government to keep the Irish in control. Moving the Irish rebels – or Catholics for that matter – to Connaught ensured political security, but also aimed “to punish the Irish for their part in the massacre[s] of 1641.”¹¹⁵ By 1653, an extensive plan to move Irish Catholics to Connaught and Clare began. Its execution would ultimately “result in the decapitation of Catholic Society in three provinces, [and] and clearing the way for the spread of English culture and the Protestant religion.”¹¹⁶ Boate’s work therefore emerged at an opportune time as English administration reassessed its plantation policy in the wake of the Irish rebellion of 1641. The publication of *Irelands Naturall History* under the Hartlib circle, and its dedication to Oliver Cromwell, are key factors in the implementation of the Cromwellian resettlement of Ireland.

¹¹⁴ Ibid., 186.

¹¹⁵ Barnard, *Cromwellian Ireland*, 10-11.

¹¹⁶ John Cunningham, *Conquest and Land in Ireland: The Transplantation of Connaught, 1649-1680* (London: Royal Historical Society, 2011), 40-44.

Chapter 4 – Taming the Wild Irish: The Cromwellian Resettlement and the Science behind Improvement

The political setting leading up to the resettlement paved the way for England to reassess its colonial policy. Although many factors contributed to the rising tensions which caused the outbreak of the 1641 Irish rebellion, Thomas Wentworth's strict rulership as Lord Deputy of Ireland had a profound impact on rising tensions between the nation's different religious groups. For instance, "Catholic resentment of English rule had been much exacerbated by the heavy hand of Strafford, which threatened [their] ownership of land as well as political influence". Wentworth's ambitions to strengthen his strict administration was met with contempt from both Catholic and Protestant groups, which subsequently led to his political demise. More importantly, "it was Strafford's removal from Ireland, briefly lightening the weight of English rule there, which emboldened Irish Catholics to act to recover their lost influence."¹¹⁷ This political climate was therefore instrumental in helping Ireland's Irish population mobilize to eliminate English rulership in the hopes of regaining political and social control.

The Irish rebellion of 1641 triggered a kingdom-wide war that led to the destabilization of English politics for the eight years that followed. The overlap between the Irish uprising and the crisis in England is a distinct characteristic of this rebellion as they were both interdependent. The growing tensions between Charles I and the English parliament were an important factor in the lack of immediate intervention at the outbreak of the rebellion.¹¹⁸ Shortly after his ascension to the throne, parliamentary disagreements began regarding the king's reform of religious policies –

¹¹⁷ Barnard, *Cromwellian Ireland*, 2-3. Strafford was recalled to advise Charles I on how to handle the Scottish revolts in opposition to the religious reforms instituted by the king. For a more comprehensive study on Wentworth's influence over Irish politics, see Hugh F. Kearney's *Strafford in Ireland, 1633-1641: A Study in Absolutism*.

¹¹⁸ *Ibid.*, 4.

which clashed with the Church of England's beliefs. After "parliament ended in dissension in 1629, Charles determined to rule without it [and] no parliament sat from 1629 to 1640." Additionally, the king's leniency to Catholicism after his marriage to Henrietta Maria raised fears of persecution amongst Protestants throughout the three kingdoms.¹¹⁹ These two aspects of Charles's rule therefore emphasize that he centered his authority on the principles of divine right of kings. Without parliamentary intervention for eleven years, all political decisions were solely taken by Charles I.

From this standpoint, the Irish rebellion of 1641 highlighted the flaws in the king's governance. Moreover, his desire to regain control of Ireland by reinstating a strict English administration was met with resistance once the parliament resumed its activities in 1640. For its members, "the need to subdue Ireland raised in acute form the mistrust of the king, and the dangers of allowing him control of an army." Charles's Catholic tendencies therefore posed a threat to parliament as they feared that the Irish rebels – who adhered to the old faith – would support the king's efforts against them and English Protestants.¹²⁰ In turn, the parliament immediately kept control of the army to be capable of suppressing the rebellion but resulted in civil war instead.¹²¹ This episode was a turning point in how the 1641 uprising and Irish Catholics, were perceived by the English parliament. The beginning of the civil wars made it clear that the Irish rebels were the origin of this political crisis. Hence, the necessity to control Ireland's problematic nature became the parliament's primary concern.

The outbreak of the Civil War highlighted that the Irish rebellion had severe political repercussions on the Three Kingdoms. The uprising of 1641 caused a "complete breakdown of

¹¹⁹ David Cressy, *Charles I and the People of England* (Oxford: Oxford University Press, 2015), 8-9.

¹²⁰ Barnard, *Cromwellian Ireland*, 4-5.

¹²¹ Cressy, 9.

trust between king and parliament” that subsequently sent England into political turmoil.¹²² The tarnished relationship between Charles I and his parliamentary counterparts paved the way for the king’s fate. Military control allowed parliament to minimize royal support which, in turn, led to the weakening of Charles’s political power. After being charged on counts of high treason, king Charles I was executed in 1649.¹²³ As the king’s execution marked the end of his rule, the fate of the Three Kingdoms – but specifically that of Ireland – was the primary concern; members of parliament “used the Irish situation to confirm and extend their hold over parliament and to press on with their campaign of reform.”¹²⁴ Their emphasis on political amendments demonstrates an immediate necessity to deal with the Irish problem in the wake of the king’s execution. Cromwell, who had been instrumental in the creation of the New Model Army in 1645 that helped defeat royalists during the Civil Wars, was the ideal candidate to undertake the reconquest of Ireland.¹²⁵

The Cromwellian reconquest of Ireland began in 1649 – perhaps the most significant year in seventeenth-century British history. The state of Ireland after the execution of Charles I had become more complex than during the rebellion itself. The end of the civil war “meant that the English authority which had to be reimposed in Ireland was no longer that of the king but of a new regime, [being] the English Commonwealth.” Upon his arrival in Ireland that same year, Cromwell’s primary goal was its reconquest and transformation into a Protestant territory.¹²⁶ This was not particularly new as there has been previous attempts to anglicize Ireland – the last being

¹²² Barnard, *Cromwellian Ireland*, 5.

¹²³ Cressy, 9-10.

¹²⁴ Barnard, *Cromwellian Ireland*, 5

¹²⁵ Mark Stoyale, *Soldiers and Strangers: An Ethnic History of the English Civil War* (New Haven: Yale University Press, 2005), 130-133. The New Model Army was a product of the political differences between the Parliament and King Charles I. By serving on the parliamentary side during the civil wars, the soldiers – who were predominantly Presbyterians – fought to ensure the protection of their Puritan beliefs against the king’s Catholic tendencies.

However, it is important to note that most soldiers did not hold the same political views as members of parliament which was a significant factor in allowing the New Model Army to operate as its own branch of political power. See Mark A. Kishlansky’s *The Rise of the New Model Army* (Cambridge: Cambridge University Press, 1979).

¹²⁶ Barnard, *Cromwellian Ireland*, 9-10.

the Elizabethan settlement. The difference in this instance was that a royal head of state did not dictate this mission. The beginnings of a republican era after the beheading of Charles I changed the colonial approaches that had seemingly failed and culminated in the Irish rebellion of 1641. Thus, the Cromwellian reconquest of Ireland aimed to secure English control by implementing a new colonial policy to solve the socio-political issues that triggered the uprising.

The firm parliamentary policies undertaken by Cromwell during the resettlement of Ireland were a consequence of the political repercussions of 1641 rebellion. Putting the blame on the Irish Catholics for triggering the civil wars was evident as their faith became synonymous to the term rebels. Hence, the plantation policies of the Cromwellian resettlement needed to ensure that the 1641 uprising was the last of its kind. The overall scheme was simple: confiscate Irish Catholic lands to, in turn, transfer them to Protestant settlers who had financed the suppression of the rebellion as per the Adventurers' Act of 1642. For English administration, "the substitution of Protestant and English landowners for Catholics was the main way in which Ireland was to be secured."¹²⁷ The secondary goal of the new colonial policies was to successfully anglicize the Irish; the uprising of 1641 proved that the promotion of Protestant values and beliefs during the previous colonization efforts was not efficient. Instead, reforming all social and cultural components of Irish life fit the new colonial approaches that parliament wrestled with during the political crisis of the 1640s. Thus, the beginning of Catholic land transfers not only changed Ireland's socio-political structure but also set the parliamentary colonial agenda in motion.

Within the framework of the Cromwellian resettlement, *Ireland's Naturall History* therefore emerges as a composite work that is analyzed in a different setting than that of its original composition. With its publication coinciding with the Act of Settlement of 1652, Boate's work

¹²⁷ Ibid., 10-15.

therefore assumes a new purpose: a thorough handbook on the moral and natural history of Ireland to assist English administration and Protestant settlers in their plantation efforts. The Act of Settlement was a legislation that “classified the Irish opponents of the parliament according to their degree of guilt” and participation in the uprising of 1641. In doing so, parliament justifiably confiscated Irish lands but also punished those found accountable based on the degree of their involvement in the rebellion. Additionally, transferring confiscated lands to Protestant soldiers and planters aimed to establish a sense of security because it suggested that Catholics were no longer in positions of power and, in turn, begin another violent episode against Protestant settlers.¹²⁸ The introduction of the Act of Settlement is significant for two interdependent reasons: first, beginning the confiscation – and transfer – of Catholic land implies that the first step in the reconquest of Ireland had been completed. In other words, Cromwell and the New Model Army needed to successfully re-establish political stability by regaining control of the island before conceding Catholic lands to their new owners. By transferring lands to Protestant settlers, Boate’s findings in *Irelands Naturall History* could be put into practice as Irish territory was finally possessed by adventurers and investors.

The rise of scientific projects in Ireland during the 1650s therefore highlights the intellectual influence of Gerard Boate’s project as a detailed – and revised – moral and natural history. Having published the work, Samuel Hartlib and his circle began a series of scientific projects which aimed to improve Ireland both for plantation purposes and the advancement of learning. For surveyors such as Benjamin Worsely, Miles Symner, and Wiliam Petty, developing projects in Ireland was an opportunity to improve the Cromwellian plantation model for economic interest. It also made

¹²⁸ Gillespie, 182, 185-186. Many Irish war prisoners were sent to the West Indies as punishment, but also as a way of decreasing political threats or the possibility of another uprising. As mentioned in my previous chapter, there were plans of transplanting the Irish inhabitants to Connaught – a barren region without any useful resources.

use of Irish lands for scientific experimentation for personal projects. It is worth noting that these intellectuals were primarily members of Ireland's protestant elite; in fact, "most of these men were brought to Ireland by the Cromwellian reconquest and employed there in the technical work of resettlement." Worsely initially arrived in Ireland to assist Thomas Wentworth in administrative affairs before being appointed surgeon-general to the army during the civil wars. Symner, on the other hand, had spent the majority of his career in Ireland. After the completion of his degree at Trinity College Dublin, he maintained an active interest in science by strengthening his ties with Hartlib and his intellectual network. Perhaps the most renowned, Petty's work and ambitions "had caught Hartlib's eye" which began a scientific correspondence between them both. Petty's success in the medical field led him to make a move to Ireland, in 1652, when he was appointed as physician-general to the Cromwellian army.¹²⁹ From this standpoint, Hartlib's publication of *Irelands Naturall History* during the height of the Cromwellian resettlement was perhaps a strategic move to increase Protestant-led scientific activity by putting Boate's writings into practice.

The most well-known project of Cromwellian land settlement was William Petty's 'Down Survey', which took place from 1654 to 1656. The transfer of land ownership initiated by the Act of Settlement therefore raised discussions on how to efficiently use the gained Irish territory. Land surveys were not a new concept – a tool which had been used on a smaller scale during earlier waves plantation settlements. Petty's project however was far more complex: "the novelty of the Down Survey was its daunting scale and the standards of accuracy to which it aspired" by using concise mathematical measurements and new instruments. Moreover, Petty hired a skillful group of men who were based in Ireland and familiar with the landscape to help conduct the land

¹²⁹ Barnard, *Cromwellian Ireland*, 213-218.

survey.¹³⁰ ¹³¹ Within the framework of improvement, Petty's project echoes *Irelands Naturall History* by gearing his ambitions towards the profitability of land.

The practical influence of *Irelands Naturall History* was evident beyond Petty's 'Down survey'. After all, most of "Hartlib's friends who went to Ireland were drawn in to the project" and even aimed to eventually complete Boate's unfinished work. Hartlib's publication of *Irelands Naturall History* therefore highlighted to his intellectual circle the land's economic potential, and more importantly, the possibility of scientific experimentation on a territory which had never been altered. The Cromwellian reconquest of Ireland therefore "acted as a forcing-bed for scientific talents, and gave opportunities for English scientists to test their techniques and theories in useful and profitable enterprises."¹³² The Hartlib circle's purpose in Ireland was to improve land for profitability while promoting the advancement of learning through personal projects. For example, Worsley was drawn to astrology and alchemy which led him to assist Petty in building a dial that would help all five senses tell time. He also continued his efforts towards the improvement of agriculture by testing new cultivation methods. Robert Child, a Leiden-educated physician who had adventured in New England before making a permanent move to Ireland, focused on the advancement of husbandry. His contributions were highlighted when he wrote "part of Hartlib's Legacy of Husbandry, [which] first showed interest in agricultural innovation."¹³³ Thus, such projects demonstrated the practical use of *Irelands Naturall History* outside of the political intentions of the Cromwellian reconquest of Ireland.

¹³⁰ Ibid., 226-227.

¹³¹ Ted McCormick, *William Petty: And the Ambitions of Political Arithmetic* (Oxford: Oxford University Press, 2009), 94-96. It is worth noting that Petty challenged Worsley's 'Geometrical Survey of Ireland'. Listing flaws in Worsley's methodical approach to land mapping led Petty to initiate his own project and present it to parliament.

¹³² Barnard, "The Hartlib Circle and the Origins of the Dublin Philosophical Society", 59-60.

¹³³ Barnard, *Cromwellian Ireland*, 222, 237-239.

The ways in which *Irelands Naturall History* was understood during the Cromwellian resettlement – both through government-funded projects like William Petty’s ‘Down survey’ and the Hartlibians’ personal ventures – highlight the practical value of Boate’s work on plantation policy. The context in which the document was published and analyzed by English administration therefore changes its purpose to one that bore colonial intentions under the notion of improving Ireland. From this standpoint, *Irelands Naturall History* became a composite handbook which had an influence over the policies of land resettlement, but also outlined the steps by which planters could make the territory a profitable one. The myriad of scientific projects that took place during Cromwellian Ireland therefore redefined the meaning of Boate’s work in parallel with the rise of the new learning.

Conclusion – Science, Improvement, and the Legacy of Irelands Naturall History

In the years following its first publication in 1652 by Samuel Hartlib, *Irelands Naturall History* remained important for the advancement of science. The legacy of Boate's work is important to consider: the relevance of the document years after its initial print demonstrates that the project was more influential than how it is often represented in current historiography. The recognition of *Irelands Naturall History* within scientific circles during the eighteenth century therefore demonstrates the multi-faceted impact the project had on the improvement of Irish society *through* science – but also highlights its influence over colonial approaches during the Cromwellian resettlement.

Irelands Naturall History was reprinted three times after its initial publication. The first publication to succeed the original work was in 1657. This version remained identical to the initial copy – including the following key sections: the dedicatory epistle to Oliver Cromwell and Arnold Boate's letter to Hartlib. In addition, the re-publication was attributed to Samuel Hartlib and printed, once again, by John Wright at the King's Head at the Old Bayley.¹³⁴ Although there are no sources available surrounding this reproduction of *Irelands Naturall History*, it is likely that the second publication aimed to increase the circulation of the work while the policies of the Act of Settlement – which had been instituted five years prior – were being amended. The 1657 act, titled *An Act for the Attainder of the Rebels in Ireland*, highlighted the success of the Cromwellian plantation but also discussed the fate of Irish Catholics who were not involved in the Rebellion.¹³⁵

¹³⁴Boate Gerard, *Irelands Naturall History* (London: John Wright, 1657). Early English Books Online, accessed February 16, 2019. <http://name.umdl.umich.edu/A28496.0001.001>

¹³⁵“June 1657: An Act for the Attainder of the Rebels in Ireland.”, in *Acts and Ordinances of the Interregnum, 1642-1660*, ed. C. H. Firth and R. S. Rait (London: His Majesty's Stationery Office, 1911), 1250-1262. *British*

Within a colonial framework, the act of 1657 was a reassessment of the Cromwellian plantation policy and its effectiveness. The resurgence of Boate's work through its second publication therefore emphasizes its significance for the continuous efforts to improve Ireland through a vigorous colonial policy. Additionally, *Irelands Naturall History* became a key for other colonial writings that also used descriptions and empirical research. Richard Ligon, a Royalist who fled England during the civil wars, also published *A True and Exact Historie of the Island of Barbados* in 1657.¹³⁶ Ligon's work is therefore an example of the impact that *Irelands Naturall History* had on empirical research, but also on the expansion of colonial narratives outside of the three kingdoms.

After its first re-publication in 1657, Boate's work dove into obscurity for nearly seventy years. *Irelands Naturall History* resurfaced during the first half of the 1700s – with three consecutive prints under Thomas Molyneux in 1725, 1726, and 1755.¹³⁷ The founding of the Dublin Philosophical Society in 1683 by William and Thomas Molyneux was a turning point in Ireland: it began a movement in which “science achieve[d] any sort of prominence of recognition.”¹³⁸ It is important, however, to recognize that the establishment of the Dublin Philosophical Society is not synonymous with a lack of scientific work in Ireland prior to 1683. Boate's *Irelands Naturall History* and William Petty's *Down Survey* are examples of projects conducted prior to the institution of the society. Still, the establishment of the Dublin Philosophical Society marked an important change in the centralization of scientific advancement – but also highlighted the state of Ireland's socio-political climate after an era of instability.

History Online, accessed February 16, 2019, <http://www.british-history.ac.uk/no-series/acts-ordinances-interregnum/pp1250-1262>.

¹³⁶ Karen Ordahl Kupperman, introduction to *A True and Exact Historie of the Island of Barbados*, ed. Karen Ordahl Kupperman (Indianapolis: Hackett Publishing Company, Inc., 2011), 1.

¹³⁷ Michael Herity and George Eogan, *Ireland in Prehistory* (Abingdon: Routledge, 1989), 5.

¹³⁸ Hoppen, “The Dublin Philosophical Society and the New Learning in Ireland”, 99.

The last three re-publications of *Irelands Naturall History* are therefore a reflection of the political setting of the eighteenth century, and a product of the Dublin Philosophical Society. The 1726 edition underwent many changes that became the final mold for this project: the title was altered, the document presented as a co-authorship and was issued at a different printing house. Molyneux changed the title to *A natural history of Ireland: in Three parts by several hands* to reflect the contributions made by members of the society, but was himself the main co-author along with Boate. The original part of the work remained unchanged and made up the first part of this new version as written solely by Boate. Molyneux's subsequent additions were a set of correspondences with the Royal Society of London "referring to some Curiosities in Ireland", and a discussion on Ireland's towers and forts which had not been published prior to this edition of *Irelands Naturall History*. The revised work was published in Dublin by George Grierson who owned The Two Bibles in Essex-Street printing shop.¹³⁹ Grierson was a well-known printer and bookseller within the Protestant intellectual circles in Ireland who was appointed printer-general to the king around the same time of this publication.¹⁴⁰ Thus, the additions made to the document by Molyneux and the Dublin Philosophical Society redefine the meaning of scientific networks and what it produces through the involvement of its membership in the publication process.

From this standpoint, Molyneux's version of *Irelands Naturall History* was printed precisely as a scientific work. In contrast to the Dublin Philosophical Society, the Hartlib circle was not an official organized scientific institution but rather a trans-national network of intellectuals. The objective behind Boate's original document, both in its composition and publication under Hartlib,

¹³⁹ Gerard Boate and Thomas Molyneux, "A Natural History of Ireland, In Three Parts. By Several Hands.", *Google Books* (Dublin: George Grierson, 1726), accessed online February 23, 2019.

<https://books.google.ca/books?id=aXBbAAAAQAAJ>

¹⁴⁰ D. Ben Rees, "George Grierson (1680-1753)", in *Oxford Dictionary of National Biography* (Oxford: Oxford University Press, 2004), accessed online February 23, 2019, <https://doi-org.lib-ezproxy.concordia.ca/10.1093/ref.odnb/50886>.

therefore makes it difficult to characterize *Irelands Naturall History* solely as a scientific work. As discussed, the socio-political gains at stake in the aftermath of the 1641 uprising demonstrate that Boate's document was much more than a thorough study of Irish territory. By adding papers from the Royal Society of London that addressed particular findings about Ireland's landscape, Molyneux built on – and perhaps polished – Boate's work to parallel the socio-cultural setting of the 1700s since the initial publication was nearly seventy-five years old. Still, preserving and including Boate's original discussion on Irish landscape in Molyneux's take on the work is an indication of its legacy. The findings of the 1652 publication were *still* relevant during a period of increasing scientific inquiry. The revisionist tone by which Boate composed his work to correct any outdated facts found in the writings of his authorial predecessors was therefore significant in reshaping both the scientific and socio-economic understanding of Ireland.

The last re-print of Molyneux's *Irelands Naturall History* was the 1755 version. The change made to this publication – both physically and in its content – give insight on the island's socio-cultural setting during the first half of the 1700s.¹⁴¹ The document was published by Richard Gough, an English antiquarian who had published original papers himself, but primarily revised works such as William Camden's *Britannia*.¹⁴² The most significant modifications, however, are the ones made to the introductory chapters that had been included in Boate's edition: the cover page was removed along with the dedicatory epistle, and Arnold Boate's letter to Hartlib which

¹⁴¹ J.B. Lyons, "Sir Thomas Molyneux, first baronet (1661-1733)", in *Oxford Dictionary of National Biography* (Oxford: Oxford University Press, 2010), accessed online February 23, 2019, <https://doi-org.lib-ezproxy.concordia.ca/10.1093/ref:odnb/18927>. Thomas Molyneux died in 1733 which means that the 1755 edition of *The Natural History of Ireland* was a reprint of the 1726 publication.

¹⁴² R. H. Sweet, "Richard Gough (1735-1809)", in *Oxford Dictionary of National Biography* (Oxford: Oxford University Press, 2008), accessed online February 23, 2019, <https://doi-org.lib-ezproxy.concordia.ca/10.1093/ref:odnb/11141>. Richard Gough was one of the leading antiquaries of his time whose interest was primarily focused on Britain. He published some papers on the topography of England and served briefly as a principal for the Society of Antiquaries of London.

had served as an introduction to the reader. Instead, an outline of the three parts of Molyneux's edition was attached as a cover page.

A new dedication to the reader was added on behalf of the bookseller – although it is unclear whether this section was composed by Grierson himself or by Molyneux. The author begins by acknowledging the origins of the work and emphasized the importance Gerard Boate's findings by stating: "I am persuaded, by the Character that has been given me of it by several Persons of Judgement and Learning, that you will find it useful and entertaining." Furthermore, the author builds on the theme of usefulness when referring to the attachment of the Royal Society's papers by noting that the work will "greatly satisfy the Curious, and be of Advantage to all that shall be concerned in improving our Country" while making new discoveries in Ireland. Lastly, the bookseller remarks that adding Molyneux's unpublished chapter to *Irelands Naturall History* aims to introduce the audience to "the learned and ingenious Dr. Thomas Molyneux."¹⁴³ Although the opening sections of the 1652 edition also present the document as a guide for improvement, they are heavily embedded in colonial undertones by promoting the settlement of planters in Ireland. By focusing on improvement and discoveries in the preface of the 1755 publication, *Irelands Naturall History* re-emerges solely as a scientific document that reflected social and political stability after nearly two decades of insecurity that began with the 1641 Rebellion.

From this standpoint, the rise of improvement projects during the second half of the eighteenth century was an indicator of how significant *Irelands Naturall History* was under Protestant rule that was embodied in the Cromwellian resettlement. The triumph of William III (William of Orange) over James II during the Glorious Revolution of the late 1680s demonstrated that "Protestants had once again firmly established control over Ireland." Hence, this victory re-

¹⁴³ Molyneux, *Naturall History of Ireland*, iii-iv.

established political security for Protestants and triggered a culture of improvement that aimed to rebuild Ireland in the wake of political conflict.¹⁴⁴ The Protestant vision of a re-improved Ireland peaked by the mid-eighteenth century; the 1760s demonstrated that “population was rising [and] prosperity not only seemed assured for the fortunate few who owned land” but to different professional circles within Ireland’s hierarchy. Furthermore, Ireland saw a rise of public works such as the building of roads and aqueducts – as well as a cultural growth that mirrored that of continental Europe – because of the political stability that reigned throughout the entire kingdom.¹⁴⁵ Thus, the re-publication of *Irelands Naturall History* seemed fitting in not only promoting scientific advancement during a period of socio-cultural advancement, but also reiterated the influence of Boate’s project on the Cromwellian resettlement.

Removing the introductory sections of the 1652 reprint of Boate’s work is therefore indicative that his findings were still relevant but that the political implications made by the Hartlibians were not applicable to eighteenth-century Ireland. There was no longer a need for the establishment of settlers for the betterment of the island as argued by the Hartlib circle in the opening chapters of *Irelands Naturall History*. The Protestant-led improvement projects of the 1700s demonstrate that the plantation policy had succeeded in turning Irish land into a prosperous territory. Hence, the focus on a culture of improvement and new discoveries in Molyneux’s re-publication transitions the work from a moral and natural history to a scientific text.

The distinction between these two approaches is the context in which *Irelands Naturall History* emerged. The first time being at the height of English colonial policy in the aftermath of the 1641 rebellion – a political crisis that became synonymous with Irish Catholics. Boate’s thorough study

¹⁴⁴ Karen Sonnelitter, *Charity Movements in Eighteenth-Century Ireland: Philanthropy and Improvement* (Woodbridge: The Boydell Press, 2016), 1-2.

¹⁴⁵ Barnard, *Improving Ireland?*, 167.

of Ireland's landscape and the moral character of its inhabitants was therefore an important contribution to the colonial efforts of the 1650s. *Irelands Naturall History* was essentially presented by Hartlib as a resource for planters to obtain a holistic understanding of the nation for its economic advancement. In contrast, Molyneux's edition emerged during a period of scientific growth in Ireland as evidenced by the births of various intellectual organizations and rising public works. Ireland's 'scientific revolution' along with a stable political climate framed the rebirth of the work within a strictly intellectual narrative. From this standpoint, the different purposes of *Irelands Naturall History* are interdependent on the socio-political context in which they were published – in turn highlighting the complex nature of Gerard Boate's project.

The legacy of *Irelands Naturall History* – both for the nation's socio-political sphere and its scientific advancement – is an important one that is often overlooked by seventeenth-century historians. In current historiography, the presentation of Boate's work as a minor scientific project that sparked a conversation about the potential of Irish landscape undermines its long-lasting impact on the improvement of Ireland in the late 1700s. The argument that Boate's work initiated a wave of scientific projects is valid, but it is not the only one; being molded by the colonial-driven introductory additions made by the Hartlib circle, *Irelands Naturall History* had a significant influence on Cromwellian reconquest and the scientific projects that took place during that period. These arguments have been made by various scholars of early modern Irish history – and specifically historians of science – and they remain valid.

However, my thesis demonstrated that Boate's work was a product of *each* of its environments. The initial composition of *Irelands Naturall History* was not explicitly intended for colonial motives, but rather as a revised moral and natural history of the land in the same literary tradition as the likes of Gerald of Wales and Richard Stanihurst. It is the political context in which Samuel

Hartlib published the work that shaped it into a revised moral and natural history for the Cromwellian reconquest of Ireland – as its publication in 1652 coincided with the implementation of the Act of Settlement. Thomas Molyneux’s 1726 edition of the document further exemplifies how the socio-political setting of the eighteenth-century re-shaped its purpose once again: as a starting point for scientific advancement in a Protestant Ireland. Hence, the addition of the papers of the Royal Society of London and Molyneux’s unpublished discussion of the nation’s forts present *Irelands Naturall History* as a compilation of research on the Irish landscape.

Boate’s project is therefore a multi-faceted document that is a product of a complex period. With limited available sources on the Boate brothers, the text itself serves as the foundation of my research. The correlations made between *Irelands Naturall History* and the setting in which every publication was printed demonstrates the importance of the work for scientific advancements, but also to understand the changing role of natural history in different episodes of seventeenth and eighteenth-century Ireland. From this standpoint, early modern historians need to reassess the significance of Boate’s project beyond its impact on the beginnings of science during the 1650s. The rise of improvement projects that Ireland experienced in the late eighteenth century therefore raises the question of whether English plantation policy was *finally* successful after centuries of failed attempts.

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Appendices

Fig. 1

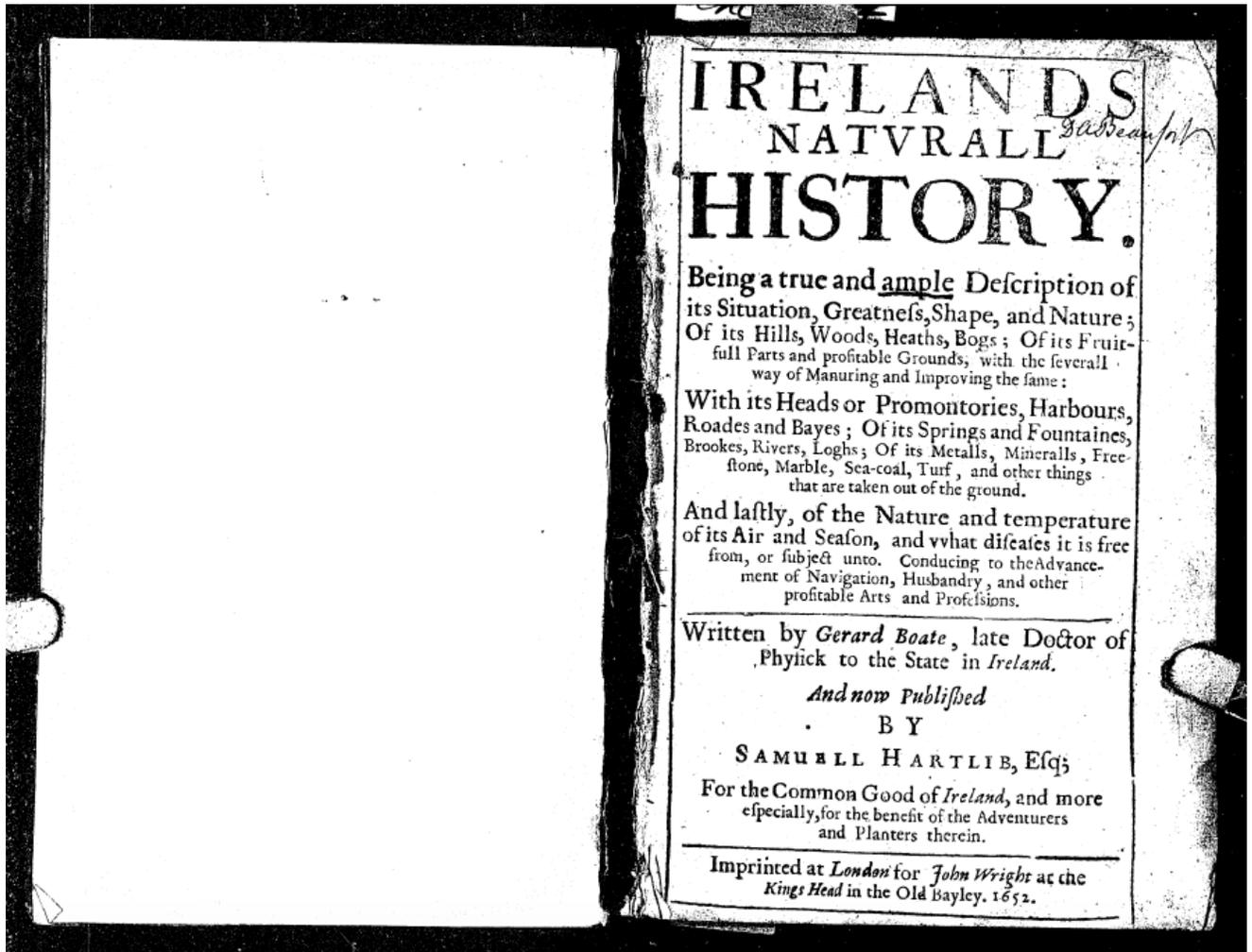


Fig. 2

professeth, not to have any knowledg at all of y^e fact: the consent of
 your honest friend at Amsterdam, for the advancing of the growth of com^{er},
 I judge to be very ingenious and likely: but whether it will do it to that
 extent, as he believeth, I cannot tell, and experience may determine that
 you tell us, that y^e best being to be called 2^d Brew^{er}, if I could
 suggest any thing unto you by y^e way of expedient, it would seeme very
 reasonable, and you would doe your utmost for y^e improving of it to
 the mutuall good of the 2^d nations: where-upon I might answer, that
 I can not conceale, what these suggestions are, you expect of me, or of
 what nature: y^e which untill you cleare first to me, I can say nothing
 to it. you desire me also to suggest a better and more healthfull way
 of brewing of Ale: where-in although I am no very fit counsellor,
 having little ~~more~~ but a bare theoreticall knowledg of y^e mystery,
 yet something I might perhaps helpe forth, worth the trying, if you
 would acquaint me with y^e particulars: where-with fault is found
 in the common way of brewing. Thus commending you and yours
 to God, I rest Sir

Yours at command

R. M.

Paris $\frac{7}{7}$ Oct^r 1652.

Sir As I was going to make up this packet, I got your l^{tr} of 7th Octob^r,
 it being come in y^e Friday's packet, instead of coming in y^e Tuesday's in y^e same
 manner as y^e l^{tr} was; of which strange continued disorder no other way
 can be imagin'd than what above I have pointed at. Now having but little time
 left, I must be much more briefe, in answering your said l^{tr}, than otherwise: I
 should have writt. I am sorry y^e Trilade. Naturall historie hath been printed
 with so many Errata, whereof the whole title-page is not full, in being put ~~up~~ for
ways: and in my l^{tr}, to passe our of the of lesser moment, they have ~~added~~
 put Sir Richard Pearson, for Sir Philip Pirraull; which monstrous
 deviation as I cannot imagin how they could possibly stumble upon it, so I
 desire you to correct it with the plea in all your copies, and to intertate
 y^e printer, if he would doe y^e same in all y^e y^e. I am glad, that your

Fig. 3

Sir

I shall be glad to see the draught of an Office of address for London, contrived by you and some others, wherof you make mention in your letter of 2 July since and which you promise to send me by the first opportunity of any passenger. It is the same opportunity I expect, for to send you three or 4 copies more of Renaudot's treatise of his Bureau I address, which you ^{desire} import of me. But as to your further desire, To furnish you from time to time with such further libels, quaterlins, or yearlie papers, as shall be printed or published on that subject: I know of no such papers, nor do not think, that there are more published besides what I have sent you already, nor that any more will be published. but if it fall out otherwise, I shall be mindfull of you, and get for you what ever of that nature shall come forth.

- As for your thirteenth Enquiry concerning the said Bureau, take notice these answers: 1. It had not done by reason of the great usurie ~~principall~~ and other not unreasonable dealings of Renaudot towards such, as took more upon palace of him: wherfor he was forbidden to take that trade any more: untill he having got friends at court by bribes and flatteries, he had it restored to him. 2. What charge might be to set-up the said office at first: no more, than the hiring of a house for himselfe to live in, with a room for his clerks to sit in, and another room for the keeping of papers. For it is no just magnificent business, as you seem to have imagined it by your 3^d question, What number of Registers, Clerks, Messengers etc are employ'd about it: by the 7th Whose way are under-officers allowed: and by the 11th In what other business the Ministers and belonging to the Office are employ'd. for all the Officers and Ministers belonging to this office are either 2 or 3 servants or clerks, whom Renaudot hires in the same manner, as other people hire their servants (viz to give them diet and lodging, and what they can give for) and whose employment is to keep book ~~copy~~ of severall matters (in of manner as is more ample and clearly expressed in the printed papers I sent you) and to help him, to translate Conventions out of other languages into french, besides-out to make-up his Gazettes and Extraordinaries. 4. The honest way of life and the qualifications of those employ'd in the said office. The Master viz Renaudot, was a physician, of little practice, no means, and no confidence: who by withdrawing from us to Rome pursued for himselfe ~~private~~ credit for erecting this office. his servants are such, as he can yet get for his time, and expens. 5. About what parts of business the office is not employ'd. the libellous catalogues of the Bureau, which I sent you, make it plain: except that there is no mention made of the chief of all, which is, playing the Lombard, and lending more upon palace, upon their usury interest. and thirdly, and by having the Monopolie of printing all, wherof his chief profit; as likewise by promoting seminall and libellous contracts: wherof you 6th question is

May 12, 1662 54/3