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**A Godly Environment:
Religious Views of Nature in Early Sixteenth-Century Strasbourg**

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ABSTRACT

This thesis offers three case studies of religious representations of the natural world in Strasbourg from 1510 to 1541 from the perspective of the interactive model of socioeconomic metabolism. This model proposes that long-term environmental instability will exert a negative effect on human / social biophysical structures and may provoke changes in the manner in which the natural world is represented within that culture. Although direct causation is impossible to prove due to the autonomous nature of the cultural sphere, this thesis suggests that the two case studies of early sixteenth-century religious reforms in Strasbourg indicate the presence of theological innovations that changed the conceptual relationship between faithful Christians and Creation, thereby offering an enhanced capacity for adherents to exploit the metabolic opportunities in their natural environment. Further, it suggests that these cultural developments were supported and strengthened in part by the stresses society experienced from the natural world.

The thesis begins with a description of the natural environment in Alsace during the late fifteenth and early sixteenth centuries, with particular attention given to the weather from 1473 to 1541. These decades spanned the coldest years of the Spörer Minimum, itself the second coldest trough of the Little Ice Age. Although weather was the most dynamic and influential element of the natural environment during this period, the model suggests that long term stress from the environment may provoke re-conceptualization of the entire natural sphere of causation. Three religious perspectives are taken as case studies in the thesis to test the model: Roman Catholic, Radical, and Evangelical Christianity. They were created temporally and geographically in proximity, but offer different theological representations of nature. Tentative conclusions arising from their juxtaposition with each other and the climatic conditions suggest that the model is helpful to better understand the

complex social and cultural changes during the Reformation.

The first case study focuses on *Die Emeis*, forty-one sermons delivered by Johann Geiler von Kaysersberg in the *Liebfrauenmünster zu Strasbourg* for Lent 1509. By reading against the grain of these sermons delivered by a well-known and highly respected Doctor of Theology, an orthodox Catholic representation of the natural world and the appropriate human relationship with it is revealed. This chapter also includes information about pre-Reform society in Strasbourg and Alsace, in order to provide a basis of comparison for later developments.

The second case study explores three sources known to be popular with Alsatian peasants from 1515 to 1525: astrologist Leonhard Reynmann's *Wetter Büchlin*, *Ein Fast schon büchlin* by Clemens Zyegler, a lay theologian from Strasbourg, and Article IV of the *Twelve Articles* which formed the foundation of peasant demands during the German Peasants' War. The third case study focuses on *Hexameron Dei opus*, written by Strasbourg Reformer Wolfgang Capito. An exegesis of Genesis 1-11, Capito writes explicitly of God's creation of the world for human salvation. The aftermath of the Peasants' War in Strasbourg and Alsace are described here, as well as social initiatives in Strasbourg favoured by Reformers such as welfare reform and education.

The model of socioeconomic metabolism suggests that following an extended period of material insecurity and social instability caused by environmental uncertainty, cultural agents will modify the representation of nature in order to render human colonization of the natural world more effective. While it is impossible to firmly attribute causality for developments in the religious view of nature to environmental stress, it can be shown that the weather during the decades at the eve of the Protestant Reformation repeatedly limited or removed adequate metabolic intake from those disadvantaged by an increasingly unequal society, contributing to social instability which culminated in the 1525 German

Peasants' War. Representations of nature in the examples studied from the new religious movements removed layers of spiritual mediation between humanity and nature which had been and continued to be accepted by the Roman Catholic Church, specifically articulating views which encouraged greater exploitation of the natural environment. Those who rebelled are known to have strongly favoured the new theologies, indicating the possibility that part of the widespread support in Alsace for reformed and radical theology may have been due to the enhanced conceptual opportunities they provided for exploiting the natural environment.

Die vorliegende Doktorarbeit beleuchtet in drei Fallstudien religiöse Sichtweisen auf die natürliche Welt in Straßburg zwischen 1510 und 1541 aus der Perspektive des interaktiven Modells des sozio-ökonomischen Metabolismus. Dieses Modell geht davon aus, dass eine andauernde Instabilität der Umwelt negative Auswirkungen auf biophysikalische Strukturen der Gesellschaft hat und Veränderungen in der Repräsentation der natürlichen Welt in dieser Kultur hervorrufen kann. Aufgrund des autonomen Charakters der kulturellen Sphäre ist es zweifellos unmöglich, einen direkten kausalen Zusammenhang nachzuweisen. Die beiden Fallstudien zu religiösen Entwicklungen im Straßburg des frühen 16. Jahrhunderts legen jedoch theologische Neuansätze nahe, welche die konzeptuelle Beziehung zwischen gläubigen Christen und der Schöpfung veränderten. Auf diese Weise befähigten sie ihre Anhängerinnen und Anhänger, die metabolischen Möglichkeiten ihrer natürlichen Umgebung besser auszuschöpfen. Diese kulturellen Entwicklungen wurden vorangetrieben und zum Teil auch verstärkt durch die biophysikalischen Belastungen, mit denen große Teile der Gesellschaft zu kämpfen hatten. Die Arbeit beginnt mit einer Beschreibung der natürlichen Umgebung im Elsass während des späten 15. und frühen 16. Jahrhunderts, wobei dem Wetter zwischen 1473 und 1541

besondere Aufmerksamkeit zukommt. Diese Dekaden umfassen die kältesten Jahre des Spörerminimums, das wiederum die zweitkälteste Zeit während der Kleinen Eiszeit war. Obwohl das Wetter den dynamischsten und einflussreichsten Aspekt der natürlichen Umgebung während dieser Zeit ausmachte, schlägt das Modell vor, dass Langzeit-Belastungen durch die Umwelt die Re-Konzeptualisierung der gesamten natürlichen Kausalitätszusammenhänge hervorrufen kann.

Um das Modell zu testen, werden drei religiöse Perspektiven als Fallstudien untersucht: römisch-katholisches, radikales und evangelisches Christentum. Trotz ihrer zeitlichen und geographischen Nähe bieten sie unterschiedliche theologische Vorstellungen von Natur an. Vorläufige Schlussfolgerungen aus ihrem Nebeneinander und ihren Bezügen zu den klimatischen Bedingungen legen nahe, dass das Modell hilfreich ist, um die komplexen sozialen und kulturellen Veränderungen während der Reformation besser zu verstehen. Die erste Fallstudie behandelt *Die Emeis*, 40 Predigten von Johann Geiler von Kaysersberg im *Liebfrauenmünster zu Strasbourg* zur Fastenzeit 1509. Liest man diese Predigten des berühmten und anerkannten Doktors der Theologie gegen den Strich, offenbart sich eine orthodoxe katholische Sicht auf die natürliche Welt und die angemessene Beziehung des Menschen zu ihr. Dieses Kapitel beinhaltet darüber hinaus Informationen über die vor-reformatorische Gesellschaft in Straßburg und im Elsass, um eine Folie zu schaffen, mit der spätere Entwicklungen abgeglichen werden können.

Die zweite Fallstudie untersucht drei Quellen, die in der ländlichen Bevölkerung des Elsass zwischen 1515 und 1525 sehr verbreitet waren: das *Wetter Büchlin* des Astrologen Leonhard Reynmann, *Ein Fast schon büchlin* von Clemens Zyegler, einem Laien-Theologen aus Strasbourg, und Artikel IV der *Zwölf Artikel*, welche die Grundlage der bäuerlichen Forderungen während des Deutschen Bauernkrieges bildeten. Die dritte Fallstudie legt den Fokus auf *Hexameron Dei opus* des Straßburger Reformers Wolfgang

Capito. In einer Exegese von Genesis 1-11 schreibt Capito ausdrücklich über die göttliche Schöpfung für die menschliche Erlösung. Die Nachwirkungen des Bauernkrieges in Straßburg und im Elsass werden hier ebenso beschrieben wie soziale Initiativen in Straßburg, unter ihnen Reformen der Wohlfahrt und der Bildung, die von Reformatoren befürwortet wurden.

Das Modell des sozio-ökonomischen Metabolismus legt nahe, dass auf eine ausgedehnte Periode materieller Unsicherheit und sozialer Instabilität, die durch klimatische Unwägbarkeiten hervorgerufen wurde, kulturelle Akteure die Repräsentation der Natur modifizieren, um die Beherrschung der Natur durch die Menschen effektiver zu gestalten. Es ist nicht möglich, zwischen Veränderungen der religiösen Vorstellungen über die Natur und Umweltbelastungen eine eindeutige kausale Beziehung herzustellen. Es kann aber gezeigt werden, dass das Wetter in den Jahrzehnten direkt vor der protestantischen Reformation wiederholt die metabolische Aufnahme für jene Bevölkerungsgruppen begrenzte oder jenen gar entzog, welche durch zunehmende soziale Ungleichheiten benachteiligt waren. Dies trug zu den sozialen Unruhen bei, die 1525 im Deutschen Bauernkrieg kulminierten. Die Vorstellungen von Natur, die sich in den untersuchten Beispielen der neuen religiösen Bewegungen finden lassen, beseitigten die Ebenen der spirituellen Vermittlung zwischen Mensch und Natur, welche von der alten Kirche akzeptiert worden waren und weiterhin akzeptiert wurden, und zwar insbesondere dadurch, dass sie die Menschen dazu ermutigten, die Natur für ihre Zwecke zu nutzen. Die Tatsache, dass die Aufständischen die reformatorischen Lehren unterstützten, deutet darauf hin, dass die in theologischen Positionen der Reformatoren entwickelten Möglichkeiten, die natürlichen Ressourcen auszubeuten, eine Rolle spielten.

TABLE OF CONTENTS

| | |
|---|------------|
| ACKNOWLEDGEMENTS | 1 |
| ABSTRACT | 3 |
| NOMENCLATURE, DATES, AND TRANSLATION | 10 |
| INTRODUCTION | 12 |
| TEMPORAL AND GEOGRAPHICAL PARAMETERS..... | 16 |
| SOURCES AND APPROACH..... | 21 |
| METHODOLOGY: THE HYBRID AND INTERACTIVE MODEL OF SOCIOECONOMIC METABOLISM..... | 23 |
| SCHOLARLY CONTEXT..... | 39 |
| CHAPTER ONE: THE NATURAL ENVIRONMENT OF LATE MEDIEVAL ALSACE | 48 |
| INTRODUCTION..... | 48 |
| 1.A TOPOGRAPHY..... | 53 |
| 1.B THE RIVERS: RHINE AND ILL..... | 59 |
| 1.C FORESTS, VINEYARDS, AND AGRICULTURE..... | 63 |
| 1.D WEATHER AND CLIMATE..... | 64 |
| CONCLUSION..... | 102 |
| CHAPTER TWO: JOHANN GEILER VON KAYSERSBERG'S REPRESENTATION OF NATURE (CASE STUDY NO. 1) | 104 |
| INTRODUCTION..... | 104 |
| 2.A THE NATURAL ENVIRONMENT IN DIE EMEIS..... | 111 |
| 2.B NATURAL PHILOSOPHY, THEOLOGY, AND GEILER..... | 130 |
| 2.C SOURCE MATERIAL FOR GEILER'S SERMONS..... | 145 |
| 2.D STRASBOURG AND ALSATIAN SOCIETY..... | 153 |
| 2.E GEILER, NATURE, AND POPULAR CULTURE IN ALSACE..... | 177 |
| CONCLUSION..... | 186 |
| CHAPTER THREE: THE COMMON MAN AND THE NATURAL WORLD FROM 1509 TO 1525 (CASE STUDY NO. 2) | 195 |
| INTRODUCTION..... | 195 |
| 3.A THREE PEASANT REPRESENTATIONS OF NATURE..... | 201 |
| 3.B PEASANT CULTURE IN ALSACE..... | 212 |
| 3.C ALSATIAN SOCIETY FROM 1509 TO 1525..... | 218 |
| CONCLUSION..... | 225 |
| CHAPTER FOUR: THE STRASBOURG REFORMERS AND THE NATURAL ENVIRONMENT (CASE STUDY NO. 3) | 230 |
| INTRODUCTION..... | 230 |
| 4.A 'IN PRINCIPIO': NATURE IN CAPITO'S HEXEMERON DEI OPUS..... | 238 |
| 4.B ALSATIAN SOCIETY, DIVIDED..... | 252 |
| CONCLUSION..... | 263 |
| CONCLUSIONS | 266 |
| BIBLIOGRAPHY | 276 |
| PRIMARY SOURCES..... | 276 |
| SECONDARY SOURCES..... | 280 |
| ELECTRONIC RESOURCES..... | 295 |

TABLE OF ILLUSTRATIONS

| | |
|---|----|
| <i>Illustration 1: Linear Climate Effects model</i> | 30 |
| <i>Illustration 2: Hybrid and interactive model of socioeconomic metabolism</i> | 32 |
| <i>Illustration 3: Hybrid and interactive model of socioeconomic metabolism incorporating the human colonization of nature</i> | 34 |
| <i>Illustration 4: Hybrid and interactive model of socioeconomic metabolism demonstrating the flows of energy and materials between symbolic culture, material culture, and the natural environment</i> | 36 |
| <i>Illustration 5: Location of the Upper Rhine graben (Oberrheingraben) in a map of France, Germany, and Switzerland</i> | 54 |
| <i>Illustration 6: Les ouvriers de marteaulx pour rompre la myne en la montaigne, Heinrich Gruff, 1530</i> | 55 |
| <i>Illustration 7: Watershed of the Rhine River</i> | 59 |
| <i>Illustration 8: Upper Rhine river prior to canalization</i> | 61 |
| <i>Illustration 9: Data types and levels of observation in historical climatology</i> | 65 |
| <i>Illustration 10: Mean March–July temperature anomalies reconstruction basing on Basel WGHD series 1454–1970</i> | 82 |
| <i>Illustration 11: Solar Activity in C14</i> | 82 |
| <i>Illustration 12: A new reconstruction of temperature variability in the Extra-Tropical Northern Hemisphere</i> | 84 |

NOMENCLATURE, DATES, AND TRANSLATION

The dominant language in many of the places included in this research has changed during the five centuries since these events took place, often several times. In an effort to avoid the confusion of unnecessary repetition, I shall include in parentheses translations to place names when they are first introduced and may lead to confusion (ie: Lake Constance (*der Bodensee*). The name of a person will be presented as they may have introduced themselves, untranslated from their native tongue.

The Julian calendar was in use throughout the period studied for this research. In order to be faithful both to my primary sources and to the natural world, which is more accurately measured by the Gregorian calendar, I have judged it most appropriate to provide both dates when necessary, rather than prioritize one calendar over the other. Therefore, following the Modern Humanities Research Association guide for the Old and New Styles, I shall provide first the Julian date, followed by a slash, and then the Gregorian date (ie: *1/10 January* or *31 March/10 April*).¹ Although an adjustment of nine days would be required for dates in the fifteenth century, to avoid confusion I have based non-specific Gregorian equivalents, such as saints days, on an adjustment appropriate to the sixteenth century (ten days).

Translation of primary source material has been an interesting challenge, and I cannot claim to be an expert in all the languages which are involved with this research. In particular, as someone whose skills in German remain, with great generosity, at the intermediate level, I am deeply grateful to Rose Fuhrmann, Volker Honemann, and Jocelyn Egginton for their collaboration in translating Alemannic High Middle German passages. I

1 For efficient conversion of dates, I have taken advantage of Fourmilab Switzerland's calendar converter, available here: <http://www.fourmilab.ch/documents/calendar/#juliancalendar>.

am also keenly aware of my debt to Susannah Brower for her gracious assistance with Latin translations in much of the thesis and to Andrew Reeves for heroically stepping in at the last moment with assistance for the Latin translations in Chapter Four. Any errors which may remain in the thesis are my own responsibility.

INTRODUCTION

Questions about the fact of life are a concern of theology as well as natural science and were unavoidably entwined during the uncounted centuries when the two were considered a single intellectual pursuit. Out of a need to respond to such questions, explanations for the existence and structure of the natural world developed into discourses with wide-ranging impact, as well as articulations of a virtuous human attitude and approach to it. Theologians' considerations of cosmological and ontological issues, the development of corresponding ritual practice to induce supportive material conditions and to prevent or to address unexpected and unwanted environmental events, and the establishment of boundaries between orthodox and heretical ideas about nature demonstrate a few of the areas upon which religious debate exerts influence. The passage of time brings change to religious conviction; opinions which once exerted great influence in cultures are eclipsed, with new and different views drawing attention and resources, and, whether quickly or slowly, eventually finding expression through social behaviour.

The natural environment, though, is also forever in motion, with processes, events, and forces which actively contribute towards changing the material conditions for human life. The growth of the environmental movement in the later decades of the twentieth century drew attention to the fragility of ecological systems whose robustness had been assumed, and while natural scientists delved into the material consequences of human activity on the environment, historians began to ask questions about the relationship between humanity and the natural world. Thus began the sub-field of environmental history, whose practitioners could be accused of a firm, although perhaps generally unspoken, agreement with Strasbourg historian Marc Bloch. His declaration that one of the proper concerns of the historian is to endeavour for a better understanding of the past as a contribution

towards a better life in the present and the future shapes much of the knowledge produced by environmental historians and certainly influenced this work.¹

During the five decades since the sub-field began, the research of environmental historians has coalesced around three basic themes.² The first centralizes the role and effects of human activity in the natural world, such as found in William Crosby's influential examination of the ecological results of the European arrival in North America,³ failed efforts to reforest logging zones in British Columbia,⁴ or social tensions generated in a community by species reintroduction into specific ecosystems.⁵ The second theme explores the influence of the environment on human society, including such issues as the role of cooling temperatures in the decline and fall of the Roman Empire⁶ or the effect of fourteenth-century famine on wage labour in England.⁷ The third theme focuses on human attitudes towards nature, which deeply influence how humans perceive the natural world and act upon it. Other examples of research in this area range from such topics as an exploration of beliefs about wolves and their influence on legislation⁸ to Clarence Glacken's magisterial survey of views of the natural environment, *Traces on the Rhodian*

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- 1 Marc Bloch, 'Introduction', in *The Historian's Craft*, trans. by Peter Putman (Manchester: Manchester University Press, 2010; repr. Alfred A. Knopf, 1954), pp. 3-16; esp. 9-11.
 - 2 Donald Worster, "Transformations of the Earth: Toward an Agroecological Perspective in History," *The Journal of American History* 76, no. 4 (March 1990), 1087-1106 (pp. 1090-1), as well as J. Donald Hughes, *What is Environmental History?* (Cambridge: Polity, 2006).
 - 3 Alfred W. Crosby, *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Santa Barbara: Greenwood Publishing Group, 1972).
 - 4 Emily Brock, 'The Challenge of Reforestation: Ecological Experiments in the Douglas Fir Forest, 1920-1940', *Environmental History*, 9 (2004), 57-79.
 - 5 Steven M. Fountain, 'Ranchers' Friend and Farmers' Foe: Reshaping Nature with Beaver Reintroduction in California' *Environmental History*, 19 (2014), 239-269.
 - 6 Michael McCormick, Ulf Büntgen, Mark A. Cane, Edward R. Cook, Kyle Harper, Peter Huybers, Thomas Litt, Stuart W. Manning, Paul Andrew Mayewski, Alexander F.M. More, Kurt Nicolussi, and Willy Tegel, 'Climate Change during and after the Roman Empire: Reconstructing the Past from Scientific and Historical Evidence', *Journal of Interdisciplinary History*, 43 (2012), 169-220.
 - 7 Bruce Campbell, 'Four famines and a pestilence: harvest, price, and wage variations in England, 13th to 19th centuries', in *Agrarhistoria på många sätt; 28 studier om manniskan och jorden. Festskrift till Janken Myrdal på hans 60-årsdag (Agrarian history many ways: 28 studies on humans and the land, Festschrift to Janke Myrdal 2009)*, ed., Britt Liljewall, Iréne A. Flygare, Ulrich Lange, Lars Ljunggren, and Johan Söderberg (Stockholm: KSLAB, 2009), pp. 23-56.
 - 8 Karen Jones, *Wolf Mountains: The History of Wolves Along the Great Divide* (Calgary: University of Calgary Press, 2002).

Shore.⁹

Within the sub-field, specialization in climate history follows the more narrow focus of the historical relationship of humanity with the weather and the climate. The specialization is frequently considered as having launched with the 1967 publication of *L'histoire du climat depuis l'an mil* by Emmanuel Le Roy Ladurie,¹⁰ who returned to the subject more recently with *Histoire humaine et comparée du climat*.¹¹ As described by Reinhold Reith in his volume *Umweltgeschichte der Frühen Neuzeit*, the challenges of time and space are keen for environmental historians, and only more so for climate historians.¹² In the wider sub-field, the division between solar-powered societies and those relying upon fossil fuels provides a useful distinction between agricultural and industrial periods; changes in other human behaviour in the environment such as mining, agriculture, or forestry also allow for the delimitation of ages and periods in research.

However, as Reith points out, periodization is not only the objective characteristic of the course of history but also the result of historical interpretation,¹³ and since atmospheric conditions until recently were largely shaped by solar activity and only occasionally by terrestrial events such as volcanoes, climate historians may look beyond human society for definable periods of research. Looming over the medieval and early modern centuries, the Little Ice Age (LIA) is unavoidable for those interested in these centuries. Particular social and cultural turbulence occurred midway through the LIA, during which German reformers successfully challenged the cultural authority of the Roman Catholic Church, but failed to establish a more equitable social order despite widespread rebellion by peasants in

9 Clarence Glacken, *Traces on the Rhodian Shore: Nature and Culture in Western Thought From Ancient Times to the End of the Eighteenth Century* (Berkeley, Los Angeles, London: University of California Press, 1990).

10 Emmanuel Le Roy Ladurie, *Histoire du climat depuis l'an mil* (Paris: Flammarion, 1967).

11 Emmanuel Le Roy Ladurie, *Histoire humaine et comparée du climat*, 3 vols (Paris: Fayard, 2004, 2006, 2009).

12 Reinhold Reith, *Umweltgeschichte der Frühen Neuzeit*, *Enzyklopädie Deutscher Geschichte* 89 (Munich: Oldenbourg, 2011), pp. 4-9.

13 *Ibid.*, p. 5.

southwestern Germany. These challenges took place during the Spörer Minimum, a trough of the Little Ice Age featuring ninety years of unreliable and unstable weather conditions, characterized by an increased numbers of extreme weather events which placed heavy pressure upon the agricultural society of Europe.

This junction of a heightened frequency of extreme weather events with social and cultural turmoil inspires the research questions of this thesis. As the most volatile element of the natural world during the research period, what role (if any) did the weather play in social and cultural turbulence in Strasbourg and Alsace from 1509 to 1541? Were there similarities or differences in representations of the natural world among Strasbourg's Catholic, radical, and Evangelical theologians? If so, what were they and did they contribute to change in the approach of Strasbourgeois and / or Alsatians to the environment? The research questions inspire an exploration of differences in the religious representation of nature and Christian approaches to nature in Strasbourg during the triple junction of unreliable weather conditions characteristic of the Spörer Minimum, the cultural changes introduced by early religious reform, and the social turmoil of the 1525 German Peasants' War.

While much research has been conducted on the Reformation, on the 1525 German Peasants' War, on individual theologians featured in this project (ie: Geiler, Capito), on the demographic and economic history of the region, as well as upon reconstructions of the weather and climate during the early sixteenth century, an exploration of potential relationships between the heightened number of extreme weather events and social events, economic problems, or developments in the cultural representation of nature has not taken place. Sixteenth century Christendom, moreover, was not homogeneous, and searching for evidence of the role played by weather in cultural change or social unrest requires establishing tight temporal and geographic parameters in order that individuals whose

work may be juxtaposed were likely to have experienced the same overall weather conditions.

Through three case studies, this doctoral thesis will query Strasbourg theologians from 1509 to 1541 for the manner in which they represented nature. The treatise will describe six decades of weather in Alsace, will outline its effects upon Strasbourg and Alsatian society, and will explore three representations of nature made by Roman Catholic, radical, and Evangelical theologians and their views of a suitably Christian relationship to it. In particular, the sources will be examined for evidence of continuity or rupture in the religious representation of the environment. The methodologies of environmental historians are particularly suited to answer the research questions, particularly the hybrid, interactive model of socioeconomic metabolism, with support from the methods of cultural history and the history of ideas (see Methodology, below). While a causative relationship between the natural environment and the Protestant Reformation is impossible to prove due to the independent and spontaneous nature of developments within the cultural sphere, the thesis will suggest that the two case studies of early sixteenth-century religious developments in Strasbourg, those which later became organized as Anabaptist and Protestant Christianity, indicate the presence of theological innovations in the conceptual relationship between faithful Christians and Creation, and that these innovations offered an enhanced capacity for adherents to exploit the metabolic opportunities in their natural environment. Further, it will suggest that interest in and acceptance of these spontaneous cultural developments was supported and strengthened in part by stresses exerted by the natural environment upon wider society.

Temporal and Geographical Parameters

As mentioned above, climate historians study the interplay of weather and climate with

society and culture, which removes many environmental factors from consideration when deciding upon temporal parameters for research (particularly those which centralize human activity as a determining factor). This research project accepts the Little Ice Age as a primary determinant for the period of study. While the following topics addressing periodization and the climate will be touched on here, they will be explored in greater detail in Chapter One, section d.

While the Little Ice Age is referred to as a single climatic period, agreement upon dates for its beginning and end remain under debate. Views for its onset range from the late thirteenth and early fourteenth centuries, as determined by a combination of decreased solar activity, growth of the Atlantic ice pack, radiocarbon dating cessation of reliably warm summers in Northern Europe, and the rains which led to the Great Famine of 1315-1317, among others,¹⁴ to the mid-sixteenth century, based on the theoretical beginning of global glacial expansion.¹⁵ This research project accepts the first perspective as reliable, considering that the second has been overcome by wider and more recent evidence.

During the Little Ice Age, atmospheric conditions were not uniform and reflected variance in solar behaviour influenced by terrestrial events like volcanoes. Climatologists have identified peaks and troughs of temperature averages such as the Wolf Minimum (c. AD 1280-1340),¹⁶ the Spörer Minimum (c. AD 1420-1570),¹⁷ and the Maunder Minimum (c. AD 1645-1715).¹⁸ This research project centres climatically on the middle portion of the Spörer Minimum, from 1473 to 1541. The latter was chosen as an end date to include the extreme weather events of 1540 and, before time constraints made his inclusion

14 Fredrik Charpentier Ljungqvist, 'A New Reconstruction of Temperature Variability in the Extra-tropical Northern Hemisphere During the Last Two Millennia', *Geografiska Annaler*, Series A, Physical Geography, 92 (September 2010), pp. 338-51; see also Rudolf Brázdil and others, 'Historical Climatology in Europe - The State of the Art', *Climatic Change*, 70 (2005), pp. 388-92.

15 Hubert H. Lamb, 'The cold Little Ice Age climate of about 1550 to 1800', in *Climate: present, past and future* (London: Methuen, 1972).

16 Ljungqvist, p. 346.

17 Franz Mauelshagen, *Klimageschichte der Neuzeit, 1500-1900* (Darmstadt: Wissenschaftliche Buchgesellschaft, 2010), p. 60.

18 Ibid.

impossible, John Calvin's departure from Strasbourg in 1541. Since adult Alsatians of the early sixteenth century are likely to have experienced the weather conditions of the late fifteenth century, those decades are included in the weather description of Chapter One, where significant attention is given to the weather events from 1473 to 1541. Two reasons for this are the dynamic role these atmospheric conditions played within the natural sphere of causation and, consequently, the biophysical realm of human experience, which exists within nature and is subject to its laws (see Methodology, below, and Chapter One, section d). However, the focus of this research is upon the manner in which religious leaders established righteous approaches to the uncertain natural environment within which their community existed. Although comments about the weather in my textual sources will draw close attention, the objective here will be to explore the manner in which theologians conceptualized and communicated a moral aspect to the natural world – how they created a Godly environment, in other words, for Christians in the early sixteenth century.

Examining the role of weather within the many cultures and societies of early modern Europe is the work of a lifetime; to achieve a meaningful analysis within the limitations of a doctoral thesis, the spatial focus is narrowed to the Upper Rhine Valley, chosen for a combination of reasons. The Upper Rhine Valley is a geographically unified area, a tidy bioregion which was recognized by sixteenth-century Europeans as Alsace (*Elsass*); it was also a distinctive cultural region with its own dialect, bordered by France, German Swabia, and the Swiss Confederacy. The geographical and cultural boundaries of this project are generally synonymous with those of the Upper Rhine Valley; the semi-continental climate and other material conditions of the region will be described in detail in Chapter One.

There is also a wealth of secondary information available on the people, culture, and social developments of the Upper Rhine Valley, and a clear debt is due to scholarly giants

Thomas A. Brady, Jr., Georges Bischoff, Rita Voltmer, Miriam Usher Chrisman, Tom Scott,

and others upon whose work this doctoral thesis builds. Much of this information focuses tightly on Strasbourg, and this research project, as well, emphasizes the city and its role in cultural developments. Although important social events like the Peasants' War or the Reformation occurred in the countryside or among both rural and urban populations together, it is fruitless to deny the central role played by Strasbourg in the history of Alsace.

A benefit of drawing relatively tight geographical limitations are that weather conditions are similar throughout the Valley, leading to common expectations among Alsatians about what constituted good or bad weather, a familiar knowledge of the effect of particular weather events, and shared hopes for seasonal atmospheric behaviour and outcomes. Such shared views and knowledge are the basis of cultural perceptions of the weather, as while individual weather events could have been as localized as a ten-minute rain shower over Colmar or as continental as the heat wave of 1473, the cultural context within which weather events occur was a regional one, with shared expectations, knowledge, and linguistic references from Speyer to Basel.

The traditional language of the Upper Rhine Valley in the early sixteenth century was Alsatian, one of a group of Low Alemannic German dialects spoken in the southwestern corner of the German speaking lands. The shared literary languages of the region were Latin and what is now referred to as Alemannic Middle High German.

Returning to a discussion of temporal parameters, this time from the cultural sphere of causation, my decision to focus on printed material published between 1509 and 1541 is the consequence of an intention to emphasize changes introduced to Alsatian cultural norms by different religious perspectives. Developments in views of the natural world may occur organically over generations, but the sharp theological differences expressed by Roman Catholics, radical peasants, and Lutheran Evangelicals, among others, openly

contested for influence through popular appeal for only handful of years. By 1541, institutional authority had overcome individual religious inspiration throughout the region, and orthodoxy was once more enforced by civil law. Theological differences between Catholicism, Lutheranism, and Anabaptism continued to develop, but many of the roots of their divergence may be found in the claims and disputes of the early sixteenth century.

The tight time frame undertaken in this thesis will allow for an in-depth examination of sources, although scarcity prevents study of a single genre - a particular disadvantage for research comparing views of nature across religious difference. For example, although sermons were regularly published in the period, those of Strasbourg's reformers are surprisingly absent from the archive; instead, publication of polemical tracts, Scriptural exegesis, letters, or other genres gained in popularity. However, despite differences in genre of presentation, the authors of the selected sources shared a common goal and a common method in achieving that goal: to persuade their audience to adopt a more virtuous life, each author appealed to Scripture and developed their exegesis within a single overarching frame, that provided by Christianity. Although using material from different genres is a not-insignificant drawback, this research proceeds on the conclusion that commonalities among the authors of the primary material - that they shared goals, methods, references, a time frame, and a single natural environment – will outweigh the drawbacks of different genres of source material.

This treatise, then, will juxtapose an annual description of weather events with late sermons of Roman Catholic preacher Johann Geiler von Kaysersberg, new views introduced by radical religious preacher Clemens Zyepler and the peasant authors of the *XII Articles*, and Wolfgang Capito's exegesis of the first book of Genesis, *Hexameron Dei opus*. The choice of primary sources takes advantage of hindsight to prioritize cultural leadership in choosing the authors and/or popularity in selecting these specific works,

something to which the authors may have legitimately aspired but could not guarantee.

Sources and Approach

Research in environmental history relies upon interdisciplinarity, as human experience of the natural world is multi-faceted, complex, and ubiquitous. The data under analysis may be restricted to the standard documents and texts of historical research, or perhaps limited to the analysis of conclusions from palaeoscientific research, such as dendrochronology (the science of tree-ring dating), fossilized pollen analysis, or the chemical analysis of glacial ice cores. Environmental historians, though, often integrate both documentary sources and 'proxy data', identified as such because it acts as proxy for information gathered by empirical measurement of the phenomena under question, in answering their research questions.

This thesis will focus upon cultural representations of nature, and while the environmental frame will be described in some detail, the choice of main source material was made on the basis of three criteria: that it was published in the location and time frame mentioned above, that the author understood himself and was recognized by others to write from one of the religious perspectives attempting to maintain or achieve interpretative authority within the culture, and the high degree of influence the author exerted within his community. The analyses will be ordered in the chronological sequence in which they were published.

Johann Geiler von Kaysersberg's collection of sermons published as *Die Emeis* was an obvious choice for views from the Roman Catholic community in Strasbourg and will be the subject of Chapter Two. His education as a Doctor of Theology, the position he occupied for over three decades as the cathedral preacher in Strasbourg's *Liebfrauenmünster*, the privileged status he enjoyed in his community, and his position as

chaplain to Maximilian I, Emperor of the Holy Roman Empire render his perspective uniquely influential. Three selections were made from the peasants' community, the focus of Chapter Three: a pamphlet written by radical Strasbourg gardener Clemens Zyepler entitled *Ein Fast Schön Büchlin*, Article Four of the peasant manifesto *XII Articles*, and, although not written as part of theological discourse, the first German meteorological publication, Leonhard Reynmann's *Wetter Büchlin*. Zyepler, although self-taught, was an influential exponent of radical religious views, as demonstrated by the invitation he received to preach to peasant rebels near Mont Ste-Odile in 1525. The radical nature of his theological perspective was confirmed by the Strasbourg Evangelical reformers, who acknowledged his views when allocating him first place as a debating opponent in the synod they organized to define Strasbourg's municipal orthodoxy in 1533. The *XII Articles*, collectively authored by a committee of fifty rebels and edited by a lay theologian and an evangelical pastor, were carried throughout the southwestern German-speaking lands by rebelling peasants. Although they were often edited further to suit specific circumstances, Article Four was included in most Alsatian iterations.

Reynmann's *Wetter Büchlin* is unique among the selections, and although it meets only two of the three criteria listed above, it was included on the basis of its great popularity and the introduction of a new print perspective to weather, one based more on the oral tradition rather than an explicitly moral / theological perspective. In his introductory verse, Reynmann declares that his publication is intended as an aid to those who are dependent on the weather, such as peasants and wine-growers. His little book relied on peasant tradition and theory; it is included in this study as an emerging alternative to the theological interpretation of natural events and processes.

The views of Wolfgang Capito, on the other hand, contributed to establishing new standards of religious orthodoxy in Strasbourg. Like Geiler, Capito was a Doctor of

Theology; from 1519 to 1523, he advised Albrecht von Brandenburg (1490-15450), the young Elector and Archbishop of Mainz and Magdeburg, prelate of Germany. Upon his move to Strasbourg in 1523 and ensuing acceptance of Evangelical views, his status established him as one of four leading reformers in the Free Imperial City. The *Hexameron Die* was his last publication, and likely written as a text book for the students of Johannes Sturm's Gymnasium, which had opened the year before it was printed. It will be discussed in Chapter Four.

Every text works to position readers in a specific way and asking questions of early sixteenth century texts whose answers are meaningful to present issues means to distance oneself from the intentions of the authors, to 'read against the text'. This doctoral research is situated within the growing wave of environmental humanities; as difficult to pin down epistemologically as women's studies, environmental humanities is here characterized as a body of study which 'simultaneously and holistically examines issues of knowledge and power in light of a culturally (socially, historically) constituted nature and an environmentally constituted culture'.¹⁹ The research questions of this thesis will query the selected texts in frames which would not necessarily be recognizable to the authors and prioritizes concerns which were not theirs. However, such differences can not be allowed to prevent the inquiry, as to do so would unnecessarily limit the present inquiry to the views and understandings of the early sixteenth century.

Methodology: The Hybrid and Interactive Model of Socioeconomic Metabolism

As in so many areas of human intellectual endeavour, theories about relationship between humanity and the non-human physical world reveal as much about those asserting a particular perspective as they do about the reality of the relationship. Taking an

19 Rich Hutchings, 'Understanding of and Vision for the Environmental Humanities', *Environmental Humanities*, 4 (2014), 213-20 (p. 216).

ecologically-oriented approach, the primary research methodology of this thesis is the interactive and hybrid model of socioeconomic metabolism. This section will begin by defining the central concepts of the thesis: *weather*, *climate*, *nature*, *environment*, and *culture*. Then there will be a brief history of the interactive and hybrid model of socioeconomic metabolism, followed by a description of the model itself. Finally, the section will conclude with a discussion of the five central concepts in the context of the theoretical model and the role they play in this research project.

Weather is the immediate condition of the atmosphere at any particular time and place. The components which are present, such as sunshine, cloudiness, temperature, precipitation, humidity/aridity, air pressure, and wind (direction and speed), assemble in various combinations which change over time. The weather may change quickly or slowly, hourly or over days.²⁰ Experience and/or direct observation, whether measured or unmeasured, generally provides the means of learning about the weather.

Climate, however, is a more abstract concept and both discovering and understanding it demand lengthier and more sophisticated effort. Although the term has etymological roots in Classical Greece, where Eudoxus of Cnidus (408–355 BCE) introduced it to discuss latitudinally-related differences in solar radiation arriving at the earth's surface,²¹ current scholarship uses a larger, more comprehensive definition based on instrumental measurement. According to the International Panel on Climate Change, climate in a narrow sense is usually defined as the average weather or, more rigorously, as 'the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years'.²² The quantities mentioned are

20 Mauelshagen, p. 6.

21 Ibid., p. 7.

22 International Panel on Climate Change, 'Annex III: Glossary', [ed. S. Planton], in *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, eds. T.F. Stocker and others (Cambridge and New York: Cambridge University Press, 2013), p. 1450.

variables at the earth's surface, such as temperature, precipitation, and wind. As defined by the World Meteorological Organization, they are averaged over a thirty-year period to create the statistics which establish the climate.²³ In a broader sense, also according to the IPCC, climate is the state of the climate system, including its statistical description. The climate system is a highly complex system consisting of five major components: the atmosphere, the hydrosphere, the cryosphere, the lithosphere, and the biosphere, and the interactions between them. This system evolves over time under the influence of its own dynamics and due to external forcings such as volcanic eruptions, solar variations, and, today, anthropogenic forcings such as the changes in the composition of the atmosphere and in land use.²⁴ Further discussion of the climate, including historical climatology and its findings for the late fifteenth and early sixteenth centuries, may be found in Chapter One, section d.

The relationship between weather and climate at its simplest is one of raw data to collated averages. The raw data are the weather events which are observed, experienced, and, perhaps, measured on a regular basis, while climate is the accumulation of those weather events into statistically meaningful averages. An analogous relationship would be the relationship of an individual woman's lifespan to national life expectancy rates for women. As individual lifespans may be shorter or longer than national life expectancy, so weather events may be hotter or colder, wetter or dryer, than climate norms for any specific region or period. However, over time, repeated extreme weather events characterized by a single factor (for example, early frosts) will affect the climate in the correlating direction (in relation to the last example, towards cooler averages for the autumn).

Defining the concepts of *nature* and *environment* is more challenging than either of the two previous examples. Developments in early sixteenth century conceptualizations and

23 Ibid.

24 International Panel on Climate Change, p. 1451.

representations of nature are central to the research questions of this thesis, and distinguishing them from the twenty-first century definitions of nature and of the environment will support the unfolding of a coherent argument. At the core of current usage of the term *nature* is the phenomena of the ecologically-active physical world collectively, especially the plants, animals, and other features and processes of the earth itself (including both weather and climate). Another important meaning of the term refers to the essential qualities, physical or otherwise, which are vital for identification and knowledge. The difference between the two connotations may be seen in the phrase *the nature of nature*, where the first iteration refers to the essential qualities of the second. The relationship between these two meanings is interesting and worthy of further study; it is the second signification, the ecologically-active physical world, which will be in use during this research project.

With roots in thirteenth century Anglo-Norman, the *environment* came to mean the natural world in general, either as a whole or within a particular geographical area (especially as affected by human activity), only in the second half of the twentieth century.²⁵ The word is sometimes qualified, leading to particular renderings such as social environment, aquatic environment, or biotic environment. However, this thesis will follow common usage to mean the natural world where it is 'relatively unchanged or undisturbed by human culture'.²⁶ While acknowledging that the separation is both philosophically and ecologically contentious, considering humanity and its artefacts as distinct from both *nature* and *the environment* is recognized as scientifically acceptable by Johnson and colleagues in their article 'Meanings of Environmental Terms'.²⁷ *Environment* will be used interchangeably with *nature* in this thesis unless otherwise specified.

25 OED, 'environment', <<http://www.oed.com.chain.kent.ac.uk/view/Entry/63089?redirectedFrom=environment#eid>>, accessed 27 January 201.

26 Donald Lee Johnson and others, 'Meanings of Environmental Terms', *Journal of Environmental Quality*, 26 (1997), 581-9 (582).

27 Ibid.

The roles of weather and of climate in nature are central, although at different scales. The components of weather determine the quality and quantity of plant and animal life, among other things, in any particular location and period. All the factors of the climate system, listed above, combine to support life on earth. As such, among other factors and to put it very simply, familiar features of the natural environment at any time and place are contingent upon the specific weather regime of the area, which is itself circumscribed by the possibilities available in the climate system.²⁸ Should those possibilities change, whether due to diminished or increased solar activity, volcanic activity on earth, or developments in the climate system itself, weather regimes will change, different weather events will become the norm for specific areas, and the parameters for plant and animal life in that area will shift, leading to changes in the types and/or quantities of plants and animals which are able to flourish there. In this way, weather affects the substance and the appearance of the natural environment, which, in turn, has an effect on human societies (see Illustration 1, p. 30). Does it also have an effect on human cultures? The theoretical frame adopted in this research project suggests that there is a dynamic relationship, although an indirect one; the question shall be discussed further after the frame's introduction, below.

Important for that discussion will be a definition of the term *culture*. In this thesis, an interpretative paradigm is adopted, where the goal is to uncover and interpret culture through the context where it exists.²⁹ Leading proponents of this approach were the American anthropologists Clifford Geertz and Edward T. Hall. The main assumptions shared by those who adopt this perspective is that culture cannot be reduced to an abstract

28 A weather regime is a recurrent large-scale spatial atmospheric structure with a deformation radius of at least several hundreds of kilometers, usually described in terms of circulation variables (air pressure, geopotential height, etc). Mathieu Vrac and Pascal Yiou, 'Weather regimes designed for local precipitation modeling: Application to the Mediterranean basin', *Journal of Geophysical Research*, 115 (27 June 2010), D12103 / DOI: 10.1029/2009JD012871, p. 1.

29 The following paragraph is taken from Zhu Hua, 'Identifying Research Paradigms', in *Research Methods in Intercultural Communication: A Practical Guide*, ed. Zhu Hua (Chichester: Wiley-Blackwell, 2016), 3-22 (8).

entity, but exists and emerges through details, actions, meanings and relationships.

Communicative behaviours, along with their meaning, are held to constitute culture, while at the same time, are informed by the culture in which they occur; meaningful communication requires a shared understanding of concepts. From this perspective, the researcher's role is to describe communicative behaviours in detail and in their contexts, as a way of interpreting the culture in its entirety.

The interactive and hybrid model of socioeconomic metabolism is a relatively new theoretical development in the history of ideas about nature and humanity. An opportune point to begin a synopsis of those past developments is a century after the period upon which this research focuses. That is, during the late sixteenth and seventeenth centuries, when European ideas of nature as controlled by God or other supernatural beings began to visibly erode. Scholars of that period increasingly recognized the natural environment as an independent and autonomous 'sphere of causation'. The activities of the natural environment, such as the procreation of animals and plants, weather, or earthquakes, were acknowledged to be self-generating and independent of the commands of spiritual beings, as well as human wishes, prayers, mental construction, historical time, or cultural preferences.³⁰ Causation for events in the natural world was to be found within nature itself and for more than a century, scholarly questions about humanity's relationship to its environment were of secondary importance compared to intellectual excitement about the material world.

Certain veins of scientific enquiry, however, during the height of European imperialism in the late nineteenth and early twentieth centuries returned to the question of the human / nature relationship with the introduction of views which are now known as 'environmental

30 Richard Hoffmann, *An Environmental History of Medieval Europe* (Cambridge: Cambridge University Press, 2014), p. 6. For further discussion of this methodology, see Hoffmann's 'Introduction', pp. 6-19, where he refers to it as the 'interactive model'.

determinism'. Social research from this perspective found that the dominion of white-skinned people over 'lesser races' was a natural consequence of a fortunate European geography and climate, as it produced qualitatively superior human beings. Conclusions were comprehensive, including the character and physiognomy of individuals and the structure and arrangement of societies. Such ideas, although newly re-interpreted through scientific frames, were the culmination of long centuries of speculation about the influence of the environment on human beings, initially seen in Classical philosophical debate about the differing influences of tropical or temperate climates on the balance of a person's four humours (blood, phlegm, yellow bile, and black bile).³¹

However, political and military events of the early twentieth century in Europe, particularly the Jewish Holocaust of the Second World War, contributed to pervasive revulsion with concepts which rationalized widespread inequality among human beings, including those associated with environmental determinism. Views like those of leading sociologist Émile Durkheim, who asserted that the causes of social facts must be found among antecedent social facts and not elsewhere, gained prominence amidst an intellectual trend which conceptually isolated human behaviour from the natural world.³² Associated with cultural determinism, which asserts that cultural stereotypes and cultural processes are sufficient causes for material conditions, and constructivism, which argues for the culturally constructed nature of all human knowledge,³³ the natural world as a historical force largely disappeared from the work of researchers in the humanities and social sciences. In historical theory, the environment was most often hung as a backdrop for humanity's social and cultural activities, which was understood to be the legitimate focus of historical

31 Suzanne Akbari, *Idols in the East: European Representation of Islam and the Orient, 1100-1450* (Ithaca: Cornell University Press, 2009), pp. 140-6.

32 'The determining cause of a social fact must be sought among the antecedent social facts and not among the states of the individual consciousness. (...) The function of a social fact must always be sought in the relationship that it bears to some social end'. Robert Alun Jones, *Emile Durkheim: An Introduction to Four Major Works* (Beverly Hills, CA: Sage Publications, Inc., 1986), p. 71.

33 Hoffmann, p. 7.

research.

This stance, however, has proved as untenable as that of environmental determinism, as the regular interaction of humans with the natural world is obvious and unavoidable. At the most rudimentary level, we are subject to natural laws, such as gravity or electromagnetism, and are dependent upon the environment for the basic needs of life, such as air, water, or food. Historian Franz Mauelshagen, in his monograph *Klimageschichte der Neuzeit, 1500-1900*, adapted Pfister and Brazdil's theory of social vulnerability to climate change³⁴ into the following linear graphic model (see Illustration 1).³⁵ It articulates effects of climate at the biophysical level and the economic level, demonstrating that climate is connected to complex social and economic events as well as having cultural consequences. However, Maulshagen did not expand upon the types or intensity of cultural consequences which might occur from changes in the climate.

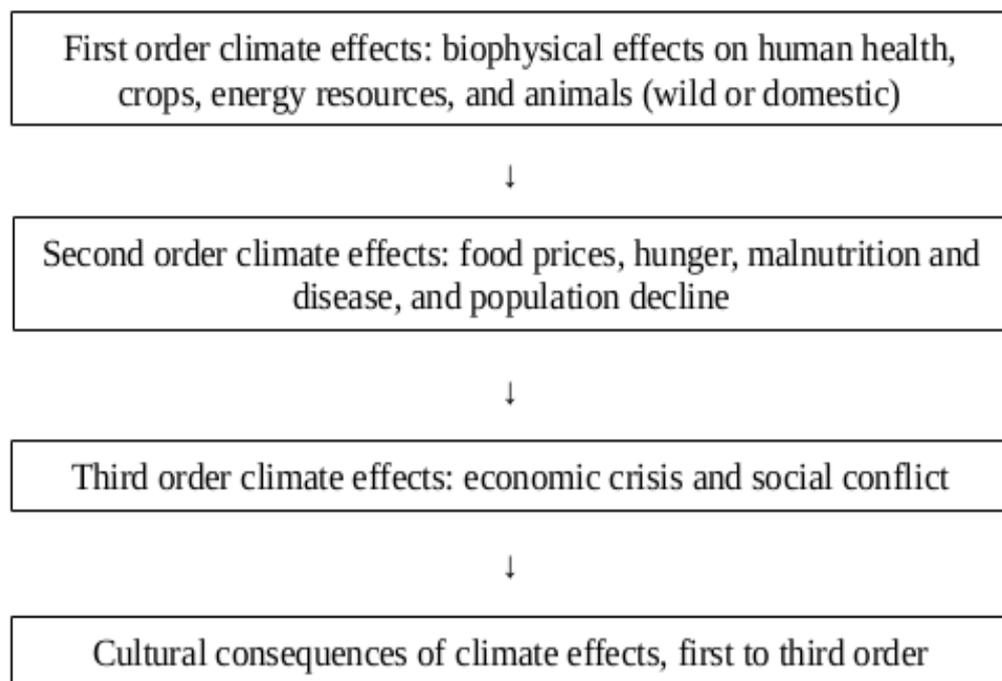


Illustration 1: Linear Climate Effects model (adapted from Mauelshagen after Pfister and Brázdil)

34 Christian Pfister and Rudolf Brázdil, 'Social vulnerability to climate in the "Little Ice Age": an example from Central Europe in the early 1770s', *Climate of the Past*, 2 (2006), 115-129 (118).

35 Mauelshagen, p. 86

While useful to initiate research into the role of nature in society, the linear model does not explore the manner in which nature plays a role in culture nor does it allow for human effects on the natural environment, which associates the model with environmental determinism. Another theoretical frame was required, one which conceptually offered a dynamic, interactive relationship between nature and humanity and which was more detailed in each component. Such a framework is presented by scholars from the science of ecology.

Within ecological science, human beings are regularly understood as simply a single species among many others, each with particular qualities which render them uniquely able to meet their material requirements. From this perspective, Marina Fischer-Kowalski and Helga Weisz, from the school of social ecology at the University of Vienna, developed the interactive and hybrid model of socioeconomic metabolism during the 1990s.³⁶ Its most salient feature was to recognize the autonomous activity of both the natural world and humanity's cultural world and to link them together at the site of human biophysical experience (see Illustration 2, p. 32; this diagram and the following two serve only as heuristic simplifications). The union is based on the recognition that human bodies, while qualitatively constructed through culture, are simultaneously biological organisms operating within the laws of nature and affected by the natural environment where they exist.

36 Marina Fischer-Kowalski and Helga Weisz, 'Society as Hybrid Between Material and Symbolic Realms: Toward a Theoretical Framework of Society-Nature Interaction', *Advances in Human Ecology*, 8 (1999), 215-51.

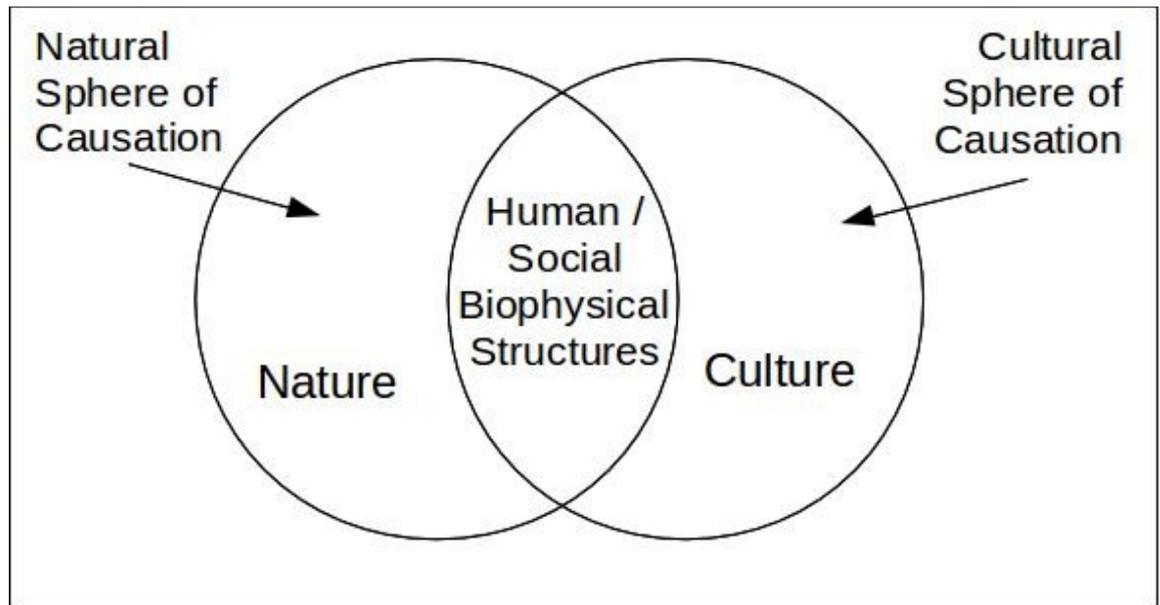


Illustration 2: Hybrid and interactive model of socioeconomic metabolism (From Hoffmann after Fischer-Kowalski and Weisz, © Richard C. Hoffmann, reproduced with permission)

In this theoretical framework, societies, including both human and social biophysical structures, are understood as the means of reproducing human populations, the primary material component of which are the bodies of the people. The total biological metabolism of any society will be the sum of a complex relationship between the body weight and reproductive rate of the humans, their working hours and the energy spent per working hour, as well as the material components of the natural world over which the culture assumes authority, such as domesticated animals, and those it takes responsibility for reproducing, such as crops. Other small factors also include the climate and other environmental circumstances, and human-made and -maintained technical structures.³⁷

As Hoffmann points out, though, humans not only interact with the nature, they consciously seek to use elements of it for their culturally-determined purposes and in doing so, modify the natural world, intentionally or not.³⁸ Genetic engineering or climate change may be recent examples of this, but are not anomalies in the context of historical human effects on the environment, which can also be seen in the role in loss of biodiversity played by widespread deforestation of the High Middle Ages in Europe or the extirpation of the

³⁷ Fischer-Kowalski and Weisz, pp. 228-30.

³⁸ Hoffmann, p. 8.

wolf from the British Isles. These issues and others were not able to be addressed by the basic hybrid model of socioeconomic metabolism, leading to modifications of the theory. The first modification was the introduction of the human colonization of nature, which refers to 'the intended and sustained transformation of natural processes, by means of organized social interventions, for the purpose of improving their utility for society' (see Illustration 3, p. 34).³⁹

There are two primary features of a colonizing human intervention in nature: firstly, that it is intentionally conceived of, organized and monitored within the cultural sphere and, secondly, it is causally effective in altering a biophysical process of the natural world. The Neolithic revolution, thousands of years ago, is an example of a primary colonial intervention in nature; it also demonstrates the manner in which cultures which assume responsibility for reproducing their own biological resources become subsequently dependent upon their own colonized systems for their continued existence.⁴⁰

39 Fischer-Kowalski and Weisz, p. 234.

40 Ibid., pp. 234-6.

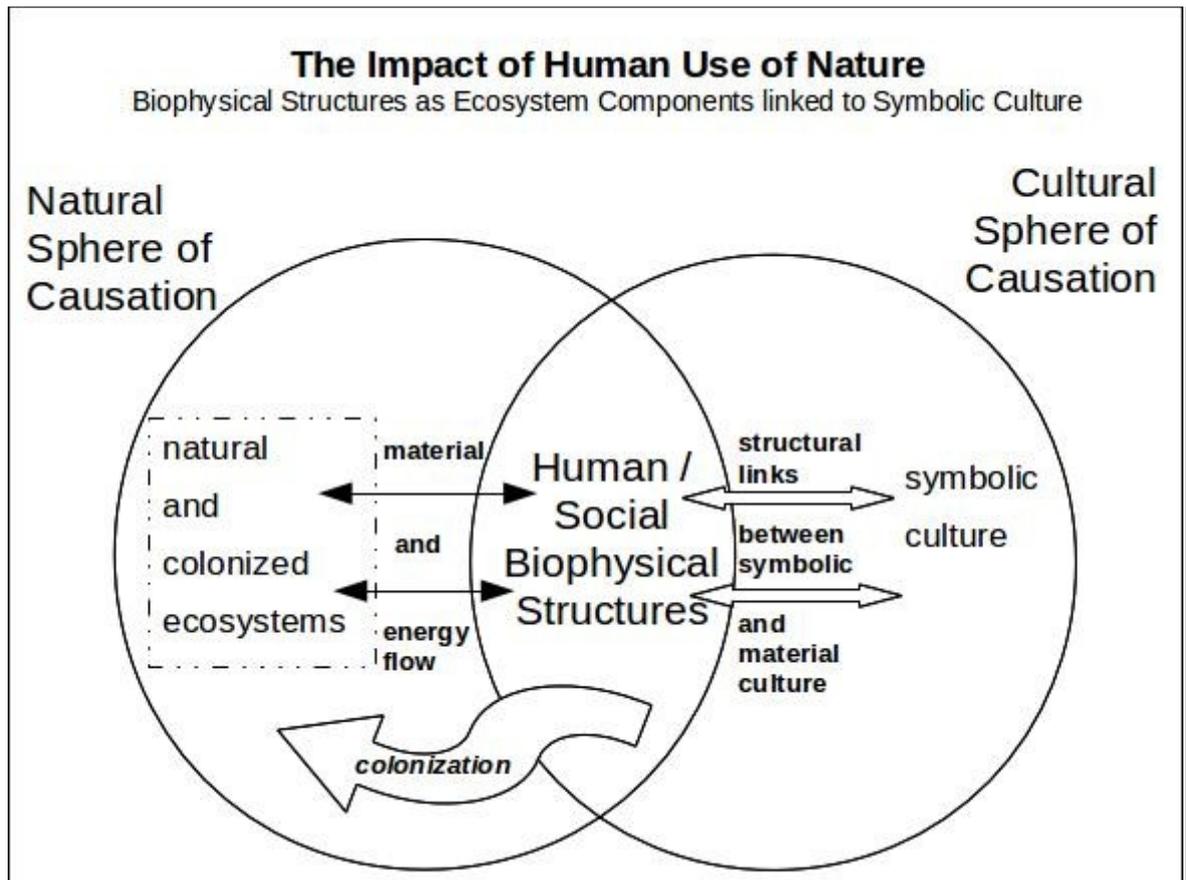


Illustration 3: Hybrid and interactive model of socioeconomic metabolism incorporating the human colonization of nature (from Hoffmann after Haberl et al., © Richard C. Hoffmann, reproduced with permission)

A long-term and slow co-evolutionary process ensues, engaging both the natural world (through natural evolution) and human culture (through sociocultural evolution); causes within one sphere may turn into effects in both, which then turn into further causes and further effects in both spheres. Conceptually limiting events, processes, or forces as having effects only in one sphere ignores the location of human biophysical structures in both natural and cultural spheres of causation. New developments in the cultural representation of nature effects the human colonization of nature by changing culturally acceptable behaviour, from which intentional and unintentional effects may occur.⁴¹ Since both spheres of causation are autonomous and create new conditions both spontaneously and in response to changes in the other sphere of causation, this becomes a recursive process.⁴²

⁴¹ Hoffmann, p. 10.

⁴² The explicit acknowledgement in this model of the autonomous and spontaneous creativity of both spheres of causation (natural and cultural) impede circular reasoning, as direct causal relationships are precluded by the terms of the model. For further discussion of the perils of circular reasoning in

Note that the model argues that the pre-condition of any systemic cultural reproduction is the maintenance of its metabolic exchange with its relevant environment.

Relating directly to this thesis' central research questions, the model indicates that challenges arising from the relevant environment may stimulate developments in the corresponding cultural representation of nature, which could develop in a spontaneous attempt to enhance metabolic opportunities for social members in response to stresses on biophysical structures. Since social control of the appropriated environment is justified by the cultural system, long-term failure to adequately manage those environmental elements deemed within social boundaries may summon alternatives from within the culturally acceptable range of options in an attempt to re-exert control (see Illustration 4, p. 36). Cultural responses to environmental change are spontaneous, and not pre-determined in any *a priori* manner.

historical climatology, see Mauelshagen, p. 41.

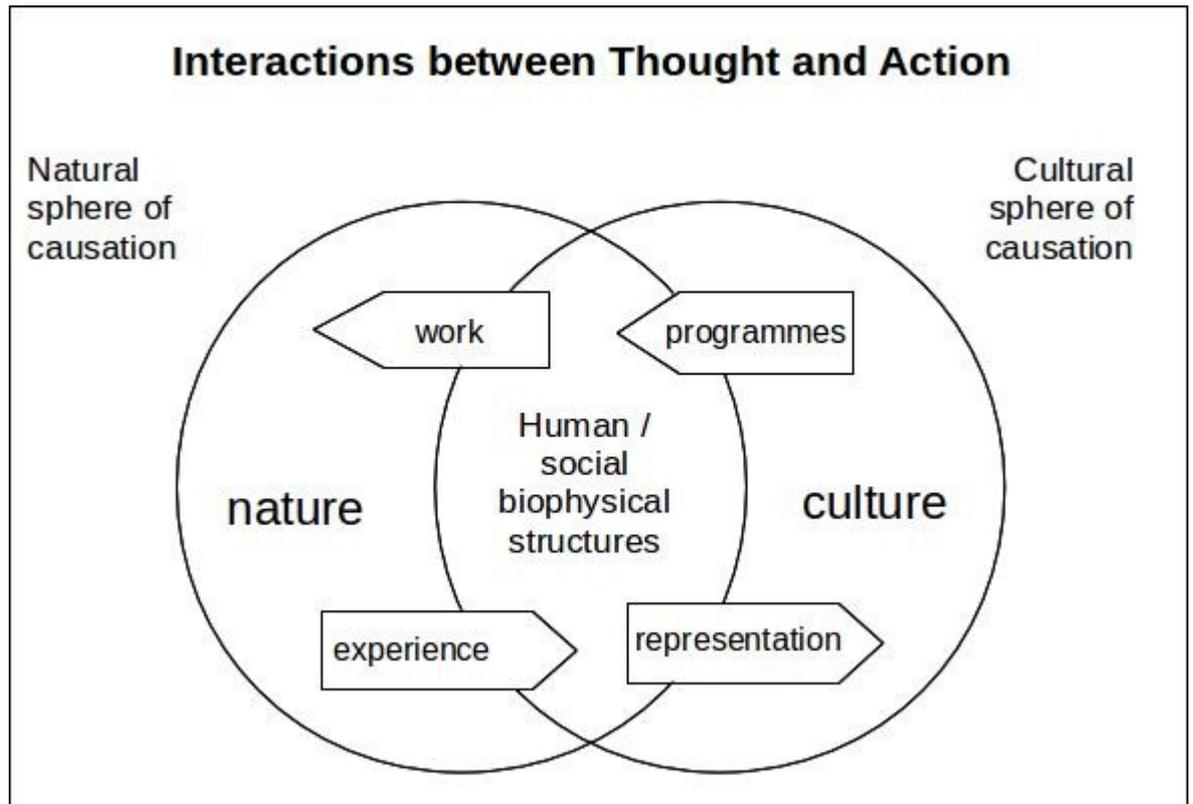


Illustration 4: Hybrid and interactive model of socioeconomic metabolism demonstrating the flows of energy and materials between symbolic culture, material culture, and the natural environment (from Hoffmann after Winiwarter, © Richard C. Hoffmann, reproduced with permission)

The interactive model of socioeconomic metabolism has particular strengths for environmental historical research. To quote from Hoffmann:

The interaction model encompasses the dynamic attributes of both nature and human culture and helps pinpoint the kinds of relationships arising in the conjunction. It imparts a temporal dimension to the particular operations of cultural and natural processes while preserving the autonomy, indeed the mutual indeterminacy, of both causal spheres. As a heuristic device the model provides a means of organizing the evidence of the past to pose and answer relational questions about the interplay of humans and their environment without predetermining those answers.⁴³

The central concepts defined earlier in this section may now be placed in relation to the interactive and hybrid model of socioeconomic metabolism and their role in this doctoral thesis clearly articulated. As was described on pages 24 and 25, weather, in the short term,

43 Hoffmann, p. 10.

and climate, in the long term, are central determining factors in the quality and quantity of plants, animals, and other ecologically-relevant elements which, collectively, are *nature* (although not the sole determining factors). Due to the unavoidably material aspects of our lives, human societies are embedded in nature and depend upon it for existence; the biophysical aspects of human society are subject to natural laws. As such, then, the effect of the weather and climate on nature is important to human societies for both specific and general reasons. Specifically, as seen in the Linear Climate Model (Illustration 1, p. 30) as well as the socioeconomic model, weather plays an influential role in determining, among other things, human health, crops, energy resources, animal behaviour and health (wild and domestic), population levels, and, eventually, economic and social stability. Climate, whether understood as average weather or the climate system, generally identifies the weather regime for any particular period and place upon which are founded successful subsistence patterns and the general economic expectations and structures of a society. As part of a complete understanding of the reasons for a transformation in Strasbourg's representation of nature during the period under study, then, and while devoting greater attention to cultural representations of nature, this doctoral research project provides a report of recent historical climatological research on the climatic context of the area, describes the annual weather and any notable weather events which may have affected the city, and assesses the role weather may have played in economic and social instability in Strasbourg and Alsace from 1473 to 1541 CE.

Questions regarding the influence of nature upon the manner in which people conceptualize, represent, and communicate about it will now be discussed. To begin at one extreme, it would be very difficult to completely deny the natural environment an influence upon any concept of *nature*. While the term in general is defined above (the phenomena of the physical world, collectively, relatively unchanged or undisturbed by human culture, p.

26), a wide disparity of culturally-specific entailments to the concept *nature*, from the Saharan Tuareg to the Inuit of the Canadian Arctic, and the traditional environmental knowledge founded upon them announce the presence of geographic specificity to some degree. That such entailments may not transfer easily from ecological region to ecological region is shown by the poor service concepts and knowledge of the natural world from the Tuareg would give to the Inuit, and vice versa.

The type and degree of influence the natural environment may have over specific cultural conceptions and representations of it, though, is challenging to discover. As described in the model of socioeconomic metabolism, since culture is a sphere of autonomous and unlimited creativity by human beings, the natural environment does not hold a direct and causative role in cultural representations of nature. However, such representations germinate, develop, and diminish in social contexts where, among other things, existing cultural values, political conflict, and economic imperative, along with any particular natural environment, exert influence. Entailments of one concept may be applied to other concepts; socially appealing conceptual developments may be more widely shared than those less attractive and, quickly or slowly, may become normative and motivate new social behaviour. In this multi-faceted context of conceptual development, searching for a single definitive cause for transformations in a culture's concept of *nature* is unrealistic.

In the fluctuating combination of influences on the concept *nature*, however, inclusion of natural conditions among the variables contributing to developments in the concept is essential. The primary role played by general climatic parameters and local weather conditions on the appearance and substance of any specific natural environment means that these primary determining factors merit close attention when describing that variable in research on changing cultural representations of the term nature. This is due to their central role in establishing the environmental context in which conceptual developments occur

(particularly relevant when the concept in question is nature itself) and their contributions to the social and economic contexts of the same.

With respect to the hybrid, interactive model of socioeconomic metabolism, then, this research will describe the natural sphere of causation around Strasbourg, with particular attention to the weather and climate from 1473 to 1541, will discuss its effects on Alsatian society during the last decades of the fifteenth century and the first four decades of the sixteenth century, and will explore Catholic, radical, and Reform views of nature from 1509 to 1538. As well as showing the speed with which views of nature may change, bringing together the natural, social, and cultural spheres through the hybrid and interactive model of socioeconomic metabolism permits an exploration of the possibility that social and economic instability in the bioregion, in part weather-related, supported the appearance or acceptance of new religious representations of nature among reform theologians in Strasbourg. Due to the spontaneously creative nature of developments in the cultural sphere of causation (even if they are responsive to stress from the natural sphere of causation), firm conclusions about causation cannot be drawn about developments in religious representations of nature at this time. Indications will be found, however, in material written by radical and Evangelical theologians which suggests the development of a new and enhanced relationship to the natural world, as will be explored in conclusions to Chapters Three and Four.

Scholarly Context

This thesis is not the first research project to look into the relationship between religion and views of the natural world; historians of science, of religion, and numerous other sub-fields have explored the issue. Shortly after the First World War, Max Weber began to speak and write of the secular perception of the natural environment as a particular

privilege enjoyed by modern man, declaring in a 1922 essay that increased intellectualization and rationalization:

means something else, namely, the knowledge or belief that if one but wished one could learn it at any time. Hence, it means that principally there are no more mysterious incalculable forces that come into play, but rather that one can, in principle, master all things by calculation. This means that the world is disenchanted. One need no longer have recourse to magical means in order to master or implore the spirits, as did the savage, for whom such mysterious powers existed. Technical means and calculations perform the service. This above all is what intellectualization means.⁴⁴

Weber's thesis was founded on the view that such 'disenchantment' was the result of a religion which favoured a rational approach to the world: Protestant Christianity. The influential theory has been widely repeated and interpreted; that it is still in current usage, is seen recently in, for example, Tom Scott's 2013 collection of essays, *The Early Reformation in Germany: Between Secular Impact and Radical Vision*. Expanding on Robert Scribner's formulation of Weber's thesis as 'the transformation of the sacramental to an anti-sacramental view of the material world',⁴⁵ Scott suggests that such a mental turn is closely associated with anticlericalism, itself due to Protestantism's 'rejection of the visual, emblematic, and symbolic in favour of the ostensibly more rational written or spoken word'.⁴⁶

However, Weber's theory of the 'disenchantment of the world' has been deeply challenged as of the last quarter of the twentieth century, as part of what Alexandra Walsham referred to as a 'bold revisionist backlash against the confident teleologies and polarities embedded in older models of modernization'.⁴⁷ His argument about Protestantism is now understood

44 Max Weber, 'Science as a Vocation', in *From Max Weber: Essays in Sociology*, trans. & ed. by Hans Heinrich Gerth and C. Wright Mills (New York: Oxford University Press, 1946), p. 142; first pub. in an edited edition as "Wissenschaft als Beruf", in *Gesammelte Aufsätze zur Wissenschaftslehre* (Tübingen: Mohr (Siebeck), 1922), pp. 524-55; originally a speech at Munich University, 1918, published in 1919 by Duncker & Humboldt, Munich.

45 Robert Scribner, 'The Reformation, Popular Magic, and the "Disenchantment of the World"', *Journal of Interdisciplinary History*, 23 (1993), 475-94.

46 Tom Scott, *The Early Reformation in Germany: Between Secular Impact and Radical Vision* (Farnham: Ashgate, 2013), p. 15.

47 Alexandra Walsham, 'The Reformation and 'The Disenchantment of the World' Reassessed', *The*

to have been one step in his summary of a linear and triumphant progress to modernity, the particular heritage of Western Civilization. Long promoted by Protestant theologians, this argument rested upon a representation of Roman Catholic sacraments as empty rituals promoting a magical view of the world which could, smugly, be dismissed as mistaken. Critics of the thesis, Scribner among them, re-frame the question as one of cultural continuity rather than an abrupt rupture based on the new religious movement; this view has become the tenor of historical discourse on the issue.

Scholars pursuing this analysis, however, largely seek to demonstrate that an 'enchanted' or 'magical' worldview was not eradicated with the new religious movement, demonstrating instead that Protestantism engendered rituals and a certain 'magic' of its own.⁴⁸ While this thesis is comfortably situated in the context of this scholarly backlash against Weber's 'disenchantment of nature' thesis, rather than seeking to confirm the continuity of a magical worldview into the Protestant era, this research will challenge Weber on the basis that a weak form of rationality with respect to the natural world can indeed be found in the views of an orthodox theologian of the Roman Catholic community in Strasbourg (see Chapter Two, Conclusions). It is not alone in eroding the basis of Weber's comparison; in particular, the argument builds upon Richard Kieckhefer's 1994 article 'The specific rationality of medieval magic',⁴⁹ Edward Grant's collection of essays *The Nature of Natural Philosophy in the Late Middle Ages*,⁵⁰ and Stuart Clarke's 1997 magisterial monograph, *Thinking with Demons*.⁵¹

Historical Journal, 51 (2008), 497-528.

48 For example, see Keith Thomas, *Religion and the Decline of Magic: Studies in Popular Beliefs in Sixteenth and Seventeenth Century England* (Oxford: Oxford University Press, 1971) or Keith Thomas, *Man and the Natural World: Changing Attitudes in England 1500-1800* (Oxford: Oxford University Press, 1983).

49 Richard Kieckhefer, 'The specific rationality of medieval magic', *The American History Review*, 99 (1994), 813-36.

50 Edward Grant, *The Nature of Natural Philosophy in the Late Middle Ages* (Washington: The Catholic University Press of North America, 2010).

51 Stuart Clark, *Thinking with Demons: the Idea of Witchcraft in Early Modern Europe* (Oxford: Oxford University Press, 1997).

In 1967, Lynn White, Jr., a medieval historian of technology, wrote a trenchant criticism of Christian views of the natural environment entitled 'The Historical Roots of our Ecological Crisis'.⁵² White's brief article indicts Christianity as the intellectual and religious foundation of the current environmental crisis, accusing specifically Western Christianity as being the most anthropocentric religion the planet has ever known for insisting 'that it is God's will that man exploit nature for his proper ends'.⁵³ The article continues to provoke passionate debate, often between a defensive Christian community and secular critics. Since this research will examine precisely the question of the Christian view of nature, albeit when the Christian community was in turmoil, it is unavoidable that the research conclusions will contribute to the debate. In brief, this thesis will confirm a theological argument of the early sixteenth century which conceptually represented Alsatian peasants as engaged in God's work when farming. Such a view was presented in a pamphlet from Clemens Ziegler published shortly before the 1525 German Peasants' War; a lengthier discussion of the material will be provided in Chapter Three. The present thesis also will confirm the explicit representation of the natural environment as having been created by God for human exploitation, as articulated by Wolfgang Capito, a leading Strasbourg reformer. For a discussion of his exegesis of Genesis, see Chapter Four.

In 1986, historian Helmut Lehmann published an article exploring the historical implications of the Little Ice Age for pious behaviour during the sixteenth and early seventeenth centuries.⁵⁴ His goal was to assess the possibility that Little Ice Age-related climate deterioration from 1570 onwards had influenced political, economic, social, and cultural developments in Europe beyond agricultural production and, if so, what regional differences may have occurred outside of climatically vulnerable regions such as Iceland,

52 Lynn White, Jr., 'The Historical Roots of Our Ecological Crisis', *Science*, n.s., 155:3767 (10 March 1967), 1203-7.

53 *Ibid.*, p. 1205.

54 Hartmut Lehmann, 'Frömmigkeitsgeschichtliche Auswirkungen der 'Kleinen Eiszeit'', *Geschichte und Gesellschaft. Sonderheft 11, Volksreligiosität in der modernen Sozialgeschichte* (1986), pp. 31-50.

northern Norway, or the high-altitude Alps. In particular, he considered the possibility that the effects of climate deterioration may be observed in the context of the so-called General Crisis of the seventeenth century. Examining a document by Daniel Schaller, a priest from Stendal in the Altmark (a historical region in northern Germany), Lehmann confirmed research from early historical climatologists of deteriorating weather conditions and explored the cultural presence of Schaller's eschatological views. He pointed out that bad experiences were frequently explained by Schaller's religious contemporaries as the result of the world's old age and the imminent end times. Further, while clearly acknowledging that weather conditions were not solely responsible, he drew attention to the upwelling of the crime of witchcraft. In particular, he drew attention to the conjunction where witches were believed to operate in precisely the domain which was most affected by extreme weather events: the growth and maturation of crops and the health of human beings and animals. He concluded that the climatic deterioration which occurred in the late sixteenth century not only helped to strengthen faith in the coming of the Last Judgment and in witches as agents of the devil in the world, but that it also likely stimulated more spiritual and social reactions which were difficult to prove.

Following an influential article published in 1999,⁵⁵ Wolfgang Behringer built on Lehmann's work with his 2007 monograph *Kulturgeschichte des Klimas*.⁵⁶ In it, he outlined recent research in historical climatology from the onset of the Holocene until the medieval warm period, then focused more tightly on the symptoms and effects of the Little Ice Age (physical and social, then cultural). He finished the book with an exploration of global warming, accepting the reality of the phenomena but suggesting that alarms have been exaggerated. While Lehmann identified the Little Ice Age as having begun in the 1570s, in

55 Wolfgang Behringer, 'Climate Change and Witch-Hunting: The Impact of the Little Ice Age on Mentalities', *Climatic Change*, 43 (September 1999), pp. 335-51.

56 Wolfgang Behringer, *Kulturgeschichte des Klimas* (Munich: C.H. Beck oHG, 2007); translated into English and published as *A Cultural History of Climate* (Cambridge: Polity Press, 2010).

concord with contemporary historic climatological research, Behringer acknowledged the wider framework and accepted its onset in the early decades of the fourteenth century.

However, like Lehmann, Behringer largely limits his research into the cultural repercussions of the Little Ice Age to the last decades of the sixteenth century and the seventeenth century. While his research was comprehensive and fruitful, bringing forth interesting insights about, for example, the incidence and conditions of trials for witchcraft throughout Europe and melancholy as a mental health illness typical of the Little Ice Age, most of his attention was on the years from 1560 onwards. By scrutinizing the relationship of weather with social events and economic problems of the early sixteenth century, as well as the cultural change introduced with the Reformation, this doctoral research will make initial steps into hitherto uncharted territory.

Australian historian of science Peter Harrison, in his 1998 volume *The Bible, Protestantism, and the Rise of Natural Science*,⁵⁷ claimed that a crucial transformation in reading the Bible led to both the theological insights at the basis of Protestantism and the opportunity space within which scientific knowledge germinated and grew. The core of his argument was based on a medieval Catholic view of revelation to mankind as having been provided by two books: the Book of Nature and the Book of Scripture, or the Bible.

Harrison contends that scholastic allegory, symbolism, metaphor, and frank hyperbole drove sincere late-fifteenth-century Christians to read the Bible more literally. Having found satisfaction in doing so, they turned their attention to the Book of Nature, and began to empirically examine what was before them, rather than accept Catholic interpretations of material phenomena.

There are some weak points in this argument, although much to be admired in it. Firstly, it smacks of the triumphant progress to a rational and Protestant modernity heralded in

⁵⁷ Peter Harrison, *The Bible, Protestantism and the Rise of Natural Science* (Cambridge: Cambridge University Press, 1998).

Weber's 'disenchantment of the world' thesis, which inspires suspicion. Secondly, and more relevantly to this research, the conceptual metaphor to which the term 'Book of Nature' refers, that the natural world is an expression of God's will and can be 'read' for an understanding of that will, was only one of (at least) two conceptual metaphors which organized late medieval Christian views of the natural environment. The Great Chain of Being, or the *scala naturae*, is another; it represents the natural world as tightly ordered and ranked, with greater power and influence enjoyed by those higher up the Chain. The authors of material in this treatise took advantage of the concepts involved in The Great Chain of Being as part of their exhortations, but did not discuss the Book of Nature. The absence of the Book of Nature from the thesis may be a result of the narrow parameters discussed above, it may be that the Book of Nature was a less relevant conceptual metaphor for theologians during a period of social turbulence, or it may be that Harrison's basic thesis is mistaken. His sources are continental and cover several bioregions, rather than regional and covering a single bioregion, making direct comparisons between his research and this thesis incompatible in scale. A fruitful topic of future research would be investigating conceptual metaphors of other regions as a step towards gaining the wider perspective necessary for resolving Harrison's argument.

The order of nature, though, is central to Lorraine Daston and Katharine Park's *Wonders and the Order of Nature 1150-1750*, a study of European attitudes to unusual events, processes, or creatures.⁵⁸ Wonders stand out, then and now, as exceptions to the anticipated state; through extensive research, the authors demonstrate the various manners in which exceptions proved the existence of a rule. Their research is wide-ranging, covering the continent and six centuries - a matter of a different scale, once again, than this thesis' single bioregion and few decades. Exceptional natural events such as wonders or natural disasters

58 Lorraine Daston and Katharine Park, *Wonders and the Order of Nature 1150-1750* (Brooklyn: Zone Books, 1998).

are useful subjects of study for what they reveal about cultural views of nature throughout history, but daily experience of the environment must also be conceptualized and communicated within a culture, and historians must respect this. Therefore, although natural wonders did appear in Alsace during the period under examination, such as the Ensisheim meteorite of 1492 or the 1541 bearded grape, their study does not appear in this thesis, which is more interested in theological conceptualizations of Creation and their communication, against which wonders stood out as anomalies.

The second, third, and fourth decades of the sixteenth century were the generative years of two new Christian interpretations of Scripture: Protestant and radical/Anabaptist.

Theologians of both, as well as Catholic theologians, continued to develop distinct views of God's wishes for humanity in the centuries to follow, and examining the work of specific individuals from the three traditions for significant differences in the representation of the natural environment is only a small contribution towards understanding the conceptual and intellectual foundations of a worldview which disregards ecological balance as a structural priority. Moreover, although the authors of the primary source material used herein may have been influential, there is no guarantee that their views were widely held, or even that these documents represent the authors' own sincerely held views over time. Despite this uncertainty, though, the research offered in this thesis is based on a fundamental agreement with the assertion of Thomas Kirchhoff and Ludwig Trepl that there are significant differences in the way we have historically considered and evaluated nature, and that an examination of changing views of nature as part of developing a comprehensive cultural history of humans on earth is valuable to our future.⁵⁹

59 Thomas Kirchhoff and Ludwig Trepl, ed., *Vieldeutige Natur: Landschaft, Wildnis und Ökosystem als kulturgeschichtliche Phänomene* (Bielefeld: transcript, 2009), p. 14.

CHAPTER ONE: THE NATURAL ENVIRONMENT OF LATE MEDIEVAL ALSACE

Introduction

In the twenty-first century, the Upper Rhine River from Basel to Lauterberg, a few kilometres southwest of Karlsruhe, functions as a border between the nation-states of France and Germany. We have become accustomed to several hundred years of a story where Alsace features as a militarily 'Contested Land', being held as German territory until 1648, French territory from 1648 to 1870, German from 1870 to 1918, French from 1918 to 1939, German from 1939 to 1945, and French lands since 1945. Other features of the landscape, however, call for the Upper Rhine Valley's consideration as a single geographical unit, and that the fifteenth- and sixteenth-century Alsatian felt herself or himself to be living in a coherent region was made explicit by Sebastian Münster's 1544 *Cosmographia*, which sharply distinguished Alsace from France, Germany, and Switzerland. Historians of the early modern period regularly accept the bioregional understanding of their subjects; Georges Bischoff examines the *Bundschuh* revolutions from this basis, and political economist Tom Scott conducts his analysis on this same perspective.¹ As well as constituting the natural sphere of causation in the interactive model of socioeconomic metabolism for this research, the region's unity was assumed by contemporaries and is accepted by historians of the area; the geographical features which assemble to create the bioregion of Alsace, therefore, merit attention.

This chapter will briefly introduce the natural environment with as much fidelity as possible to the period in which the authors of my case studies lived. Interwoven with that will be Alsatians' engagement with it, as appropriate. I will also discuss the methods of

1 Georges Bischoff, *La guerre des Paysans: L'Alsace et la révolution du Bundschuh 1493-1525* (Strasbourg: La Nuée Bleue, 2010), pp. 33-7; Tom Scott, *Regional Identity and Economic Change: The Upper Rhine 1450-1600* (Oxford: Clarendon Press, 1997), pp. 17-40.

weather reconstruction as developed in the sub-field of historical climatology, explain why such a weather reconstruction is not possible for Strasbourg and the surrounding area at this time, introduce a recent weather reconstruction centred on nearby Basel, and offer a regional weather description for Strasbourg and Alsace for the years between 1473 and 1541, including information about the effect of the weather in this late medieval / early modern society. I would like to mention again that offering such a regional weather description is a problematic venture with the sources which are available; my weather description assembles several scattered sources to provide annual information for the region, as I am unable to rely upon a single source for full coverage.

Although the focus of this thesis is on Strasbourgeois' religious representations of nature, the interactive model of socioeconomic metabolism asserts that spontaneous activity in the autonomous cultural sphere occurs in an indirect relationship to events in the natural world, mediated through the human biophysical experience of the natural environment. That is, that unpredictable changes in human culture may occur in response to events in the natural world (as well as events and developments in the cultural sphere itself) where natural events have an effect on social conditions and behaviour. A clear understanding of the Alsatian environment of the late fifteenth and early sixteenth centuries is therefore necessary for understanding the role played by that environment in Alsatian social events and for suggesting an indirect explanation for the different representations of nature found in the distinct conceptual packages of Catholic, Evangelical, and Radical theologians as delivered within thirty years of each other.

The time frame of this research occurs during the Spörer Minimum, an in-depth description of which will be provided in this section of the chapter. In brief, the Spörer Minimum was the second coldest trough of the Little Ice Age, which was a volatile period of European climate approximately five centuries long and characterized by irregular temperature

averages well below mid-twentieth century norms. As mentioned in the Introduction, the relationship between climate and weather is an intimate one because they are based on the same phenomena interpreted at different scales. Weather is the atmospheric condition experienced on a daily basis. Climate is a measure of the average pattern of variation in temperature, precipitation, wind, atmospheric pressure, and other meteorological variables in a given region over long periods of time; it takes thirty years of weather observation and measurement before confident statements may be made about climate. Its study, the science of climatology, allows for comparisons across regions distant from each other in time and space. Much in the same way that individual financial transactions are the essential building blocks of that abstract domain we know as 'the economy', individual weather events are the essential building blocks of climate.

Weather during the Spörer Minimum attracts attention because the weather conditions of that period were frequently outside of norms desirable for Alsatian society, as would be expected during a period of changing climate. Other elements of the natural environment, such as the geology, rivers, soils, or forests, were fairly stable except when influenced by extreme weather events, such as heat waves contributing to forest fires or excessive rain causing floods. The volatility of the weather made it a prominent source of turbulence in an otherwise stable natural environment and a key driver of changes in the natural sphere of causation in Alsace at that time. While much of the natural world was accessible to resource exploitation by sixteenth-century Alsatians (for example, mountains were mined and soils were farmed), weather was outside of all human attempts to control or influence it, despite many ritual efforts to do so. As the interactive model of socioeconomic metabolism asserts that changes in the natural sphere inspires, via humanity's biophysical experience of them, changes in cultural representations of nature, attention to the key driver of change in the Alsatian natural environment is merited when describing that

environment.

Although mentions of weather in my textual sources draw particular attention, the focus of my research is on depictions of nature. If, for example, volcanic eruptions had been a key driver of change in the natural sphere of causation in Alsace over this period, this research would still focus on mentions of nature in the textual sources, because the point is how religious thinkers conceived of the natural world, situated humanity in it, and identified moral approaches to nature when the natural world changed around them – not upon how they conceived and wrote of singular elements in that world, such as volcanic eruptions or weather.

Strasbourg's biophysical experience of long-term, repeated atmospheric instability leads to the second reason for this chapter's emphasis on weather in Alsace from 1473 to 1541: along with the central role it played in changes in the natural world, weather conditions were also instrumental to material conditions for people living in Strasbourg and the surrounding towns, villages, and farms, as well as stimulating specific culturally-meaningful events and social behaviour. Its importance cannot be underplayed: weather deeply influences, if not determines, the outcome of agricultural ventures, particularly in non-industrial societies. As will be shown, the consequences of repeated extreme weather events, such as drought or unseasonable frost, combined with culturally-determined unequal access to resources to destabilize Alsatian society. Later chapters will describe the various ways in which Alsatians responded to stresses arising from the natural sphere of causation in a culturally-conditioned manner. For now, it is enough to note that the biophysical structures of human society in Alsace, located in the interactive model of socioeconomic metabolism at the junction of the natural and cultural spheres of causation, were affected by weather characteristic of climate change from 1473 to 1541. In which case, knowledge of that weather is a necessary contribution to a full explanation of social

events as they occurred.

As well, this thesis points towards the possibility that spontaneous developments within the autonomous cultural sphere of causation were strengthened and supported by social responses to conditions imposed from the autonomous natural sphere of causation. That is to say, that along with a new relationship to the supernatural world, many Strasbourgeois and Alsatians were inspired by Luther and other theologians to adopt a new representation of the natural world, one which improved their opportunities for metabolic exchange with their environment. If so, events of the natural world contributing to this pivotal period of conceptual adjustment need to be included among the factors explaining the Reformation.

To summarize: the two reasons for the detailed description of weather conditions in Alsace from 1473 to 1541 are the role these conditions played in changes within the natural sphere of causation and, consequently, the biophysical realm of human experience, itself inescapably integrated into the natural environment. This chapter provides the environmental context for changes in religious representations of the natural world, with an emphasis on the volatile weather conditions characteristic of the Spörer Minimum.

A word about including the geological record of the Upper Rhine Valley in a work exploring the human understanding of the natural world during the Spörer Minimum: weather, and, therefore, climate, do not arise in isolation from the topology with which the atmosphere interacts. The Upper Rhine is a shallow river plain flanked by mountains, and this geological formation influences Alsace's temperature, cloudiness, precipitation, evaporation, and energy budget.² Their interaction shapes and influences such local weather phenomena as storm patterns, wind velocity and direction, and the likelihood of frost, among other things. The physical and chemical environments established by the basic geology of a region exert a clear effect on the variety and volume of plant life it is

2 Roger G. Barry, *Mountain Weather and Climate*, 2nd Ed (London: Routledge, 2013), Ch. 4.

able to support.³ Establishing the entire interactive and reciprocal relationship in Alsace between humans and nature includes geology in a description of the natural environment.

1.a Topography

The Upper Rhine Valley is a trench with a width of 30 to 40 km and a length of approximately 300 km, interrupting the terrain on a roughly NNE - SSW axis from Basel in the Swiss Alps to Frankfurt-am-Main in the German state of Hesse.⁴ The trench is of a type known geologically as a *graben*. That is, depressed ground detached from its surrounding by two parallel faults, where the land outside the faults has lifted to become a *horst*.⁵ To the west, the southerly section of the horst is the Vosges Mountain range in France (*Les Vosges*) and, further north on the same side, the Haardt Mountains in Germany (*der Hardtberge*). The eastern horst, all in Germany, consists of the Black Forest to the south (*der Schwarzwald*) and the Oden Forest to the north (*der Odenwald*) (see Illustration 5, p. 53). The area of concern for this research is in the southern part of the Upper Rhine graben, between the Vosges Mountains and the Black Forest.

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- 3 See, for example, Arthur R. Kruckeberg, *Geology and Plant Life: The Effects of Landforms and Rock Types on Plants* (Washington: University of Washington Press, 2004).
 - 4 Christian Röhr, 'Lage des Oberrheingrabens in einer Karte von Deutschland', *Der Oberrheingrabe*, modified from Lahner, L. and M. Toloczyki, *Geowissenschaftliche Karte der Bundesrepublik Deutschland*, 2006 <<http://www.oberrheingraben.de/index.htm>> [page last updated 23 October 2014; accessed 2 July 2012].
 - 5 Gideon G.O. Lopez Cardozo and Jan H. Behrmann, 'Kinematic analysis of the Upper Rhine Graben boundary fault system', *Journal of Structural Geology*, 28 (2006), p 1028-39; Ühlinger, Urs, Karl M. Wantzen, Rob S.E.W. Leuven, and Hartmut Arndt, 'The Rhine River Basin', in *Rivers of Europe*, ed. by Klement Tockner, Urs Ühlinger, and Christopher T. Robinson (London, Burlington, MA, and San Diego: Academic Press, 2009), pp. 199-245.



Illustration 5: Location of the Upper Rhine graben (Ober Rheingraben) in a map of France, Germany, and Switzerland (modified from Röhr)

Geologically understood as the western horst of the Upper Rhine graben, the core of the Vosges Mountains is red sandstone; it is found in great abundance in the Northern Vosges (north of Saverne) and regularly in the Upper Vosges (south of Saverne). Its service as a building material was prized, as seen in the use of the stone for Strasbourg's cathedral, the *Liebfrauenmünster zu Strasbourg*. Towards the southern Upper Vosges, even older pockets of granite and gneiss may be found in the Palaeozoic layers which fold down towards the 30 km-wide Burgundian Gate, also known in English as Belfort Gap (*le Trouée de Belfort*, in French; *die Burgundische Pforte*, in German).⁶ Lead, copper, silver and iron are present in significant volumes,⁷ making the area one of the greatest sources of pre-Columbian silver in Europe. Mining began in the area during the Celtic pre-Roman Iron Age from the fourth century BCE, waxed and waned with the Roman⁸ and Alemannic cultures, and was

6 Scott, p. 20.

7 B. Forel and others, 'Historical mining and smelting in the Vosges Mountains (France) recorded in two ombrotrophic peat bogs,' *Journal of Geochemical Exploration*, 107 (2010), pp. 9-20.

8 Rudiger Mäckel, Arne Friedmann, and Dirk Sudhaus, 'Environmental changes and human impact on landscape development in the Upper Rhine region', *Erdkunde*, 6 (2009), p. 43.

resumed during the tenth century.⁹ A particular centre for the extraction of silver was centred on Ste-Marie-les-Mines in the Lièpvre Valley of the Vosges Mountains. After closing down in the early fourteenth century, the industry flourished from 1502, following an investment agreement between the landowner, Guillaume de Ribeaupierre, and Sigismund of Austria.¹⁰ By the mid-sixteenth century, mines in the valley may have been employing up to 10,000 men underground, with a possible supporting population of approximately 50,000 people¹¹ – larger than the population of Strasbourg at the time (see Illustration 6).

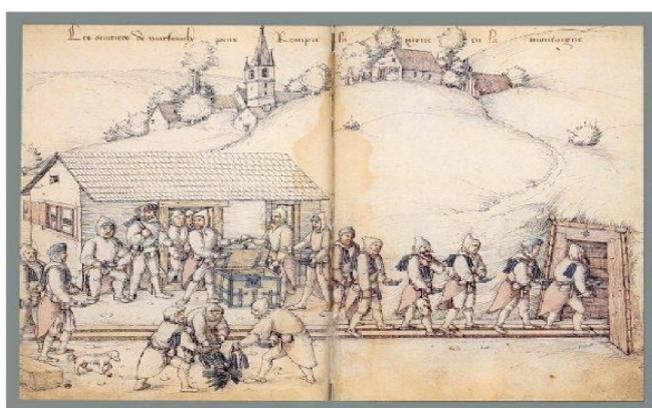


Illustration 6: Les ouvriers de marteaux pour rompre la myne en la montaigne, Heinrich Gruff, 1530; original in the library of l'Ecole nationale supérieure des Beaux Arts de Paris; above image on La Mine Gabe-Gottes <http://www.gabe-gottes.fr/f/_gr_b.html> [accessed 7 July 2013]

The Vosges massif, rising slowly from the Paris Basin to the west, breaks off sharply in the east and slopes down to the Upper Rhine floor are precipitous; the crest of land separating the watersheds of the Ill and the Bruche from the Moselle and Meurthe Rivers is closer to the Upper Rhine Valley than to the middle of the mountain range. With 30 kilometres between the southernmost Vosges and the Swiss Jura, the Burgundian Gate is the greatest gap leading west from the Upper Rhine Valley. One might get the sense of an impenetrable mountainous wall defining the western rim of the Upper Rhine Valley, but between the Burgundian Gate and the Severne Pass, which provided reliable, year-round access for

⁹ Ibid., p. 45; see also Forel, p. 11.

¹⁰ Pierre Fluck, J. Gauthier, and A. Dissler, 'The Alsatian Altenberg: a seven centuries laboratory for silver metallurgy', *Troisième Conférence Internationale, Achéométallurgie en Europe* (France, 2011), DOI: hal-00914305, version 1.

¹¹ Personal communication with Pascal Hestin, deep-pit guide at Tellure, Ste-Marie-aux-Mines, 28 March 2013.

medieval travellers between Strasbourg and the nearby cities of Besançon, Dijon, Nancy or Metz, there are numerous small and large passes through the Vosges. They include tiny defiles which lead up and out of the Upper Rhine Valley, providing space for footpaths or animal trails, the larger *col de Bussang* linking Basel to the headwaters of the Mosell, the *col de Bonhomme* linking Colmar to the headwaters of the Meurthe, and the *col de Saales* running from the valley of the Bruche to Raon-l'Étape or St-Dié, linking Strasbourg with towns to the west of the range.¹²

Likewise the eastern horst of the Upper Rhine graben, known as the Black Forest, where rivers such as the Rensch, the Murg, the Wagensteigbach, the Höllenbach, or the Kinzig slope down to the Rhine, creating passage for animals and humans as well as water. The Kinzig River valley, for example, was once known as a *Brückenlandschaft*, or 'bridging territory,' for the access it provided from Strasbourg to Schramberg and Rottweil.

Numerous smaller passes through the range also existed, such as those of the Simonswälder, the Prech, and the Glotter valleys. Alsace's human and animal populations were not isolated from neighbouring regions.

The Black Forest can be seen more as a geological sibling to the Vosges than an identical twin. Where the Vosges Mountains consist mostly of red sandstone, the same is found only on the Enz heights and eastwards; granite and gneiss, however, are proportionally present in greater volumes. Precious and base metals are present, but in smaller volumes than in the Vosges, and mining in the Black Forest was not as important to the region's economy as that of the Vosges.

The southern boundary of the Upper Rhine Valley is established by the Blauen Peaks, which are located at the northeastern limits of the Jura Massif. The ridge stretches westwards into Burgundy to create the southern wall of the Burgundian Gate. Formed from

¹² Scott, p. 25.

the disrupting fault patterns of the nearby Upper Rhine graben, the Ferrette Jura is considered part of the foreland of the northwestern Alps.¹³ Substantially different in composition from its geological neighbours to the north, the Jura consists largely of limestone and clay; mining was not a significant economic activity. In the Jura to the south and east of Basel, the deeply eroded valleys of the Birs, Ergolz, or Frick rivers do not offer easy passage to the uplands. There is no clear definition of watershed or height of land; settlement was sparse and remains so.

At its northern end, the Upper Rhine graben splits in two and becomes the southern leg of a Y-formation of grabens known as the Rhenish Triple Junction. The branch which leads to the northwest, and through which the Rhine river flows, curls around the Mainz Basin, and then continues through the Rhenish Massif into the Lower Rhine Embayment. The branch which leads to the northeast follows the Hessen depression and the Leine graben near Göttingen, before apparently disappearing beneath the sediments of the North German Plain.¹⁴

With respect to the climatic conditions of Alsace, the Vosges Mountains in the west create a rain shadow on the western Rhine plane, with more precipitation striking the eastern foothills of the Black Forest. That wetter, western edge of the Black Forest faces the Upper Rhine Valley in a gentler manner than the Vosges, showing greater levels of erosion. The Blauen Peaks, as the northernmost face of the Alps, act as a barrier preventing the passage of warm air from the Mediterranean to the Upper Rhine Valley, while the comparatively gentle opening of the graben to the north allows the moderation of the maritime climate to penetrate further south than at similar latitudes further west.

A further effect of its geological foundation on environmental conditions in the bioregion is

13 Kamil Ustaszewski and Stefan M. Schmid, 'Control of preexisting faults on geometry and kinematics in the northernmost part of the Jura fold-and-thrust belt', *Tectonics*, 25 TC5003, doi: 10.1029/2005TC001915.

14 Magdala Tesauero and others, 'Continuous GPS and broad-scale deformation across the Rhine Graben and the Alps', *International Journal of Earth Sciences*, 94 (2005), 525-37(pp. 525-6).

the role it plays in establishing the soil, because the rock layer determines which variety of soil type is created. The Black Forest and Vosges Mountains, being predominantly granite, gneiss, and sandstone, have highly siliceous soils, which are coarse, sandy, and often acidic, with poor nutrient and water retention. The calcium-based, alkaline limestone mountains of the Jura in Switzerland are equally poor for nutrient or water retention, as well as being highly susceptible to water erosion. Along with a relatively porous base, though, all three mountain ranges also received an abundance of fine loess on the winds, which, following erosion by glaciers and rainfall, created a patchy and widely mixed soil varying rich and poor conditions.¹⁵ Regardless, much sedimentary material initially deposited on the heights eventually arrived in the Upper Rhine Valley due to further erosion by wind and water.

The Upper Rhine graben is anchored with sediments from the Tertiary and Quaternary periods, often up to depths of several hundreds of metres.¹⁶ Fine loess wafted in upon winter winds, while gravel, sand, flint, silt and marl were carried onto the graben floor by rivers; under melting conditions at the end of the last ice age, plateaus of gravel, flint and sand were formed which built contrasts to the drifts and layers of fine loess and older sediment. The abundant blanket of loess led to predominantly nutrient-rich brown soils of loamy sand and sandy loam, interspersed with equally nutrient-rich alluvial soils of sandy loam, silty loam and clayey loam.¹⁷ In agricultural terms, loam retains nutrients well, accepts and retains water easily while allowing excess to drain away, and feels soft and crumbly when held in the hand. The floor of the graben was renowned for its fertility, and few disagreed with the anonymous Revolutionary of the Upper Rhine when he proclaimed

15 Fritz Oehl and others, 'Soil type and land use intensity determine the composition of arbuscular mycorrhizal fungal communities', *Soil Biology and Biochemistry*, 42 (2010), 724-38.

16 A. Lang and others, 'Changes in sediment flux and storage within a fluvial system: some examples from the Rhine catchment', *Hydrological Processes*, 17(2003), 3321-34 (p. 3322).

17 Eva Johanna Link, 'Investigation and Modeling of the Optimization Potential of Adapted Nitrogen Fertilization Strategies in Corn Cropping Systems with Regard to Minimize Nitrogen Losses', thesis for a Doctor of Agricultural Sciences, Universität Hohenheim, Hohenheim, 2005, p. 17 <<http://www.dart-europe.eu/full.php?id=57443>> [accessed 30 May 2012].

Alsace to be the fairest of all climes and filled with beautiful fruit, good wine, and corn, meat, and fish.¹⁸

1.b The Rivers: Rhine and Ill

Central to the identity of the bioregion as well as its ecology, the Rhine river flows from south to north through Alsace and features prominently in its economic history as well as environmental history. With a length of 1,232 kilometres (766 miles),¹⁹ the Rhine is the only European river which has its head-waters in the Alps and flows to the North Sea; its watersheds drain 189,700 km² of central European soils (see illustration 7).



Illustration 7: Watershed of the Rhine River (from Frijters and Leentvaar)

Engineering work dramatically transformed the river during the nineteenth century; before that, human efforts to control the current can be characterized by their impermanency. Flowing through several bioregions, each of the ten sections has its own name: the Anterior Rhine (*der Vorderrhein*) and the Posterior Rhine (*der Hinterrhein*) come together to form the Alpine

Rhine (*der Alpenrhein*), which bubbles along energetically for 102 kilometres until reaching Lake Constance (*der Bodensee*). 63 km long, the lake constitutes its own section of the river. Exiting west from Lake Constance, the High Rhine (*der Hochrhein*) receives water from five major tributaries; these include the Aare, which discharges the largest

18 From textual analysis, the Upper Rhine Revolutionary is thought to have been a man; his work is very likely to have reached completion in 1509 or 1510. *Der Oberrheinische Revolutionär, das Buchli der hundert Capitel mit XXXX Statuten*, ed. Klaus H. Lauterbach (Hannover: Hahn, 2009).

19 During much of the twentieth century, the length of the Rhine was wrongly understood to be 1320 km; the error has been tracked to a first appearance in the 1932 Knaurs Lexicon, a German encyclopedia, and was accepted as authoritative when used by the widely influential Brockhaus Conversations-Lexikon in 1933. Biologist Bruno Kremer, at the University of Köln, noticed and corrected the error in 2010. Christopher Schrader and Berit Uhlmann, *Sueddeutsche*, 28 March 2010 <<http://www.sueddeutsche.de/wissen/der-rhein-ist-kuerzer-als-gedacht-jahrhundert-irtum-1.24664>> [accessed 4 June 2013].

water basin in Switzerland. The High Rhine tumbles over the Rhine Falls (*der Rheinfall*) near Schaffhausen, makes a ninety-degree turn to the north at the Rhine Knee in Basel (*das Rheinknie*) and, today, becomes the Upper Rhine (*der Oberrhein*) at that elbow. Medieval sources, however, often located the start of the Upper Rhine above the Rhine Knee: for them, the Upper Rhine began at the Hauenstein outcrop above Laufenburg, 39 km upriver of Basel and almost half way to Schaffhausen.

Flowing north from Basel, the Upper Rhine meanders closer to the Black Forest than the Vosges Mountains. Prior to the determination of nineteenth-century engineers to render the river navigable for commercial vessels, the Rhine was characterized, according to Marc Cioc, as possessing 'sinewy curves, oxbows, braids, and thousands of islands. It had a quirky, unpredictable flow, and underwater cliffs so dangerous that it spawned legends of a siren. It had sleepy fishing villages and oak-elm meadowlands on its banks. It was the site of one of Europe's most spectacular salmon runs at the Laufenburg rapids in the Swiss Alps. It contained an overabundance of allis shad (a herring-like species known colloquially as mayfish) and a modest number of sturgeon. It also supported vibrant populations of beaver, otter, bats, and birds.'²⁰

Management of the river by Alsatian authorities began as early as 1449, when the *Straßburg Verordnungen* were established to regulate the problems of pollution and over-fishing.²¹ Although this nineteenth-century map of the Rhine near Strasbourg prior to canalization features a landscape which has already obviously been changed by human activity (see Illustration 8, p. 60), it may serve to point towards the complexity of the river in the sixteenth century. It is extremely unlikely the riverbeds were in the same location, as the very low lying riverbank permitted the river to change course in response to conditions

20 Marc Cioc, 'The Political Ecology of the Rhine', *Nature in German History*, ed. by Christof Mauch (New York and Oxford, 2004), 31-47 (p.35).

21 Koos Wieriks and Anne Schulte-Wülwer-Leidig, 'Integrated water management for the Rhine river basin, from pollution prevention to ecosystem improvement', *Natural Resources Forum*, 21 (1997), 147-56 (p. 147).

such as flood, high water, or drought.



Illustration 8: Upper Rhine river prior to canalization (from Harnell)

The width of the medieval waterway fluctuated dramatically, sometimes up to 4 km in stretches of braiding and islets created by the periglacial conditions of the last ice age.²²

Medieval builders slowly surmounted the challenge of erecting a bridge across the Upper Rhine. In 1225, an anchored bridge was built in Basel, and then, in 1275, another at Breisach, which, at about a third of the way from Basel to Strasbourg, was well-located for traffic between Colmar and Freiburg-im-Breisgau. The Strasbourgeois laid a *Schiffbrücke*, a pontoon bridge, across the river in 1333, and built the *Rheinbrücke*, an anchored bridge, at the same location in 1388. One third of the latter was destroyed by a flood in 1404 and entirely swept away in 1566.²³ The bridge at Strasbourg was the northernmost point available to cross the river in the sixteenth century; controlling the bridge generated income for the city, and made it a centre of trade between eastern and western Europe.

Headwaters for the Rhine river are largely the result of Alpine snow and glacial melt, as well as rainwater, but all the Rhine's source waters moderate each other to produce a fairly stable flow after the Rhine Knee. The Alpine Rhine and the High Rhine show a

22 Lang, p. 3322.

23 Angelika Sadlau and others, *Die lange Bruck: 600 Jahre Wege zum Nachbarn* (Kehl: Kehl am Rhein Kultur- und Verkehrsamt, 1989), p. 39.

pronounced winter low and spring high, but this is balanced by Lake Constance, and the tributaries flowing into the Upper and Middle Rhine produce maximum volumes at an earlier time of year, due to being at lower elevations. High water, therefore, in the Upper Rhine under normal conditions tends to come during the summer: June and July. Winter temperatures along the river, up to Basel and the start of the High Rhine, are usually mild and the Upper Rhine freezes only in exceptionally cold winters.²⁴

After Mainz, the Middle Rhine (*der Mittelrhein*) shoots down the Rhine Gorge, and at Bonn becomes the Lower Rhine (*der Niederrhein*). It continues until it enters the Netherlands and splinters to become, north of Lobith, the Rhine Delta.

Although it is generously accepted as situated beside the Rhine, Strasbourg was actually built on an island in the Ill river, immediately southwest of that tributary's junction with the Rhine. Due to the notoriously shifting nature of the Rhine riverbed, it is difficult to be precise about the spatial relationship between the two rivers and the city; the distance between the cathedral and the Rhine is likely to have been much less than the 4.7 km it is today. The Ill was easily bridged and eleven of the twenty bridges used today in Strasbourg were built by 1500.²⁵ The smaller river's source is found in the Jura Mountains, near the village of Winkel, Switzerland, located some 35 km south-east of Basel. The water flows quickly downhill and calmly travels most of its 216.7 km through the flat bottom of the graben on a course parallel to the Rhine. Mulhouse and Colmar, two of Alsace's largest secondary cities, are on the banks of the Ill. Along with the others rivers and large streams of the area, the Ill facilitated the movement of wine and other trade goods, provided energy for water mills, washed away waste, and provided drinking water, among other things. The waterways of Alsace served a vital purpose for late medieval society.

24 Thomas P. Knepper and M.H. Bik, *The Rhine*, The Handbook of Environmental Chemistry: Water Pollution, 5 (Berlin and Heidelberg: Springer 2006).

25 Jean-Paul Haettel and Edmond Maennel, *Strasbourg et ses Ponts* (Strasbourg: Le Verger Éditeur, 1990)

1.c Forests, Vineyards, and Agriculture

Trees provided primary source material for energy needs (firewood), stickwood production (vineyards), and tan and building in late medieval Alsace. From a forestry perspective, the Upper Rhine graben is divided into three zones: plains (altitudes from 150m to 250m above sea level (asl)), foothills (from 250m to 450m asl), and mountains (from 450m to 1450m asl).²⁶ The beech and silver fir forests of the Vosges mountains, eagerly exploited by sixteenth century miners, are known as high forests, while low or coppicing forests tended to occupy the foothills above the vineyards first introduced to the bioregion by the Romans. Since their introduction centuries ago until the mechanization of the 1950s, it was a tradition in Alsace to fix every single vine with a stick, using 6000-7000 pieces of wood per hectare; in the Black Forest, young firs were used for the same purpose. Along with the need for stickwood, the regular demand by vintners contributes to understanding why coppicing forests were located by settlements and vineyards.

Extending from the foothills of the Vosges onto the plain in Alsace, grapes for making wine were a foundation of the area's late medieval economy; Rhenish wine was traded as far north as the English court, for example. On the east side of the Rhine, though, while vine growing was also common, it was limited to the foothills of the Black Forest, as gentler slopes and plateaus inside the forest favoured shifting cultivation focused on cereals for self-sufficiency. Cereals were also characteristic of agriculture on the plain; where forested, the lowland trees featured oak and hornbeam in a mixed deciduous forest. Deforestation was extensive outside of carefully-managed coppice forests throughout the Upper Rhine graben, providing an underlying condition for extreme flooding and

26 The following is indebted to R. Ostermann and A. Reif, 'Socioeconomical and Ecological Aspects of Coppice Woods History in the Lower Vosges (France) and the Black Forest (Germany)', *Methods and Approaches in Forest History*, eds. Mauro Agnoletti and Steven Anderson, International Union of Forestry Research Organizations (IUFRO) research series 3 (Wallinford, UK: CABI, 2000),107-18.

earthslips.²⁷

1.d Weather and Climate

Historical climatology, or the study and reconstruction of climatic conditions of the past, has emerged as a science during the last fifty years, primarily in response to an urgent need for a basis of comparison with current climate behaviour. Research in the sub-field draws upon both the natural world and human culture for data (see Illustration 9, p. 64). With respect to the natural environment, direct measurement and proxy data provide evidence; the latter is so-called because available data was created due to climatic behaviour rather than being a measurement of the atmospheric phenomenon themselves. For example, dendrochronology (the study of tree ring growth) may reveal information about the temperature and precipitation of each year. Other environmental sources of information about past weather and/or climate may come from fossil pollen, animal and plant remains, fossil wood from trees, glacial ice-cores, varves (sedimentary layers of clay and silt which represent the summer and winter deposits in a lake), terrestrial sediments, the temperature of boreholes, or moraines, among others.

The principal source material for evidence from human culture is documentary. Authors may have observed weather anomalies, natural hazards, unusual weather events or daily weather, or may have regularly measured barometric pressure, temperature, precipitation, water levels, or other non-organic indicators of weather behaviour. Regular measurements, however, are largely unavailable before the seventeenth and eighteenth centuries, depending on region, and historical climatologists rely on proxy data from documents as well as from the natural environment for climate reconstructions prior to the onset of instrumental measurement. Details about organic phenomena (proxy data) that are sought

²⁷ Mäckel, p. 45.

in the documentary record include the start dates of vine or grain harvests, yield volumes, sugar content in wine, or plant phenology (ie: budding, flowering, or fruiting). Non-organic phenomena which may have been noted by authors include water levels, snow fall, the freezing or melting of bodies of water, the duration of snow cover, etc.²⁸

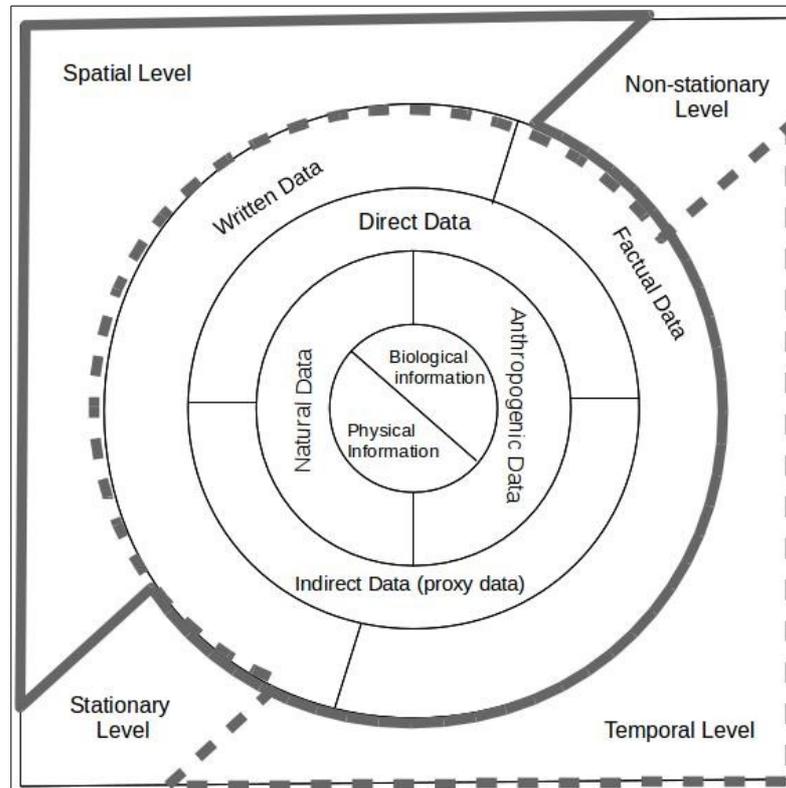


Illustration 9: Data types and levels of observation in historical climatology (adapted from Glaser 2001)

The two data sources provide different types and levels of information and the integration of both types of data poses an interdisciplinary core undertaking for all the sciences involved with historical climatology, one which asks for co-operation concerning the criteria for qualitatively heterogeneous evidence.²⁹ Information from the natural environment, for example, may provide data sets which are lengthy in time, but at a very low resolution. Mauelshagen notes that some natural data may be accurate only to ten or a hundred years, while others, like the cores of ice bores or fossilized pollen, may offer annual information and some, such as tree rings, may provide seasonal information. For the

28 Christian Pfister and others, "Documentary Evidence on Climate in Sixteenth-Century Europe," *Climatic Change*, 43 (September 1999), 55-110 (58).

29 Mauelshagen, p. 40.

long pre-documentary period of the Holocene, then, the principal challenge is accuracy in dating.³⁰

Documentary sources, on the other hand, may provide information which has high resolution (daily, weekly, monthly, seasonal, or annual) but limited to the lifespan or interests of a single observer and therefore brief with respect to the number of years covered. Institutional commitment to recording regular and recurring events are often ideal sources for historical climatologists, but they are rare. With respect to documentary data, the primary challenge is qualitative: can the documents be trusted? Information crucial for a reconstruction of past climate may be entirely absent, false, inaccurate or provided in an obscure manner. The historian must negotiate the perils of the Gregorian calendar reform, accepted at various years in different parts of Europe, and the hazards of regional variations in New Year's Day. As Mauelshagen writes, often errors and inaccuracies remain.³¹ As much as possible, two or more independent witnesses are preferred to confirm weather events.³²

Nevertheless, documentary data have proven to be important for reconstructing the North Atlantic Oscillation and sea level pressure estimates at monthly or seasonal levels,³³ as well as regional and large-scale temperature and precipitation field reconstructions.³⁴ Moreover, temperature indices as derived from documentary sources are a crucial single proxy for reconstructing winter temperatures in many parts of Europe.³⁵ Finally, documentary evidence is the only sort from which the timing and severity of weather events can be

30 Mauelshagen, p. 39.

31 Ibid.

32 Mauelshagen, p. 42.

33 Ricardo García-Herrera and others, 'New records of Atlantic Hurricanes from Spanish documentary sources', *Journal of Geophysical Research*, 110 (February 2005), 2156-2202, DOI: 10.1029/2004JD005272.

34 Jürg Luterbacher and others, 'European temperature variability, trends and extremes since 1500', *Science*, 303: 5663 (5 March 2004), pp. 1499-1503.

35 A. Pauling and others, 'Evaluation of proxies for European and North Atlantic temperature field reconstructions', *Geophysical Research Letters* 30 (2003), 1787-81, DOI: 10.1029/2003GL017589.

assessed for the pre-instrumental period,³⁶ and an important use to which they are placed is the verification of extreme values found in natural proxies.³⁷

In 2001, Christian Pfister revolutionized the sub-field with his publication of a method to quantify the information found in documentary evidence which rendered it accessible to comparison with measured statistics.³⁸ To summarize, his methodology evaluates the documentary data available with specific critical assessments of source, author, and/or institutional reliability and, where possible, corroborates it with different documentary data. If the source material is found to be satisfactory, identification and transformation of the basic information into simple and weighted indices for temperature and precipitation ensue. Once that step is complete, the data is compiled and verified through a calibration with measured values.³⁹

The first step in the process of evaluating documentary material for its usefulness towards a weather reconstruction, that of verifying the text for accuracy in describing weather, has developed a regular and thorough structure of analysis. In his 2001 volume *Klimageschichte Mitteleuropas: 1000 Jahre Wetter, Klima, Katastrophen*, Rüdiger Glaser gave an overview of the terrain which must be covered to accept a document as reliable evidence.⁴⁰ Of central importance is an examination of the original document, part of the necessity of demonstrating that the author lived at the same time and close in space to the weather he purports to describe and that his record is complete.⁴¹ Following that, the analyst identifies the recorder and with that, attempts to determine if he had any training in

36 Pfister, 'Documentary Evidence'.

37 Christian Pfister and others, 'Documentary evidence as climate proxies. White Paper written for the Proxy Uncertainty Workshop in Trieste, 9-11 June 2008 (updated December 2008)', National Climatic Data Center (US), <https://www.ncdc.noaa.gov/paleo/reports/trieste2008/documentary.pdf> [accessed 28 May 2015]

38 Christian Pfister, 'Klimawandel in der Geschichte Europas. Zur Entwicklung und zum Potenzial der historischen Klimatologie', *Osterreichische Zeitschrift für Geschichtswissenschaften*, 12 (2001), 7–43.

39 Brázdil, p. 378.

40 Rüdiger Glaser, *Klimageschichte Mitteleuropas: 1000 Jahre Wetter, Klima, Katastrophen* (Darmstadt: Wissenschaftliche Buchgesellschaft, 2001), p. 29.

41 W.T. Bell and Astrid E. Ogilvie, 'Weather compilations as a source of data for the reconstruction of European climate during the medieval period', *Climatic Change*, 1 (1978), 331-48.

observing the weather or special levels of knowledge about it, his motivations for making the record, his age, and his profession. The record is assessed for the general perception of other, non-climatic circumstances and the spirit which governs it, as well as for any special or unusual circumstances. Finally, the system of dating used in the document is identified.

Glaser also writes that it is clear in every period that mythological or ideological information was provided along with factual details, which demands further analysis for an accurate critical interpretation of documentary source material.⁴² He advises asking how long certain ideas about the climate had been held in the author's culture, the manner in which the weather experience was perceived and explained, what literary works and/or philosophical or religious ideas were available to the chronicler and which social groups may have adapted them (in any form), and who had access to which information during the period. A complete answer would involve the integration of the prevailing worldview into the critical interpretation of the documentary source for a weather reconstruction. This evaluation process has expanded the use of documentary evidence in reconstructing weather of the past by encouraging weather reconstructions at a finer resolution.

Establishing the suitability of documentary sources for reconstructing the weather of a region is a rigorous process, and unfortunately, documents from Strasbourg in the late fifteenth and early sixteenth centuries fail the test. Originality of the material under assessment is central to determining its reliability, and although there are many edited documents available from Strasbourg between 1509 and 1541, I found only a single original source which was created by an author who may have been an eyewitness to weather events of Strasbourg and the surrounding region: Sebastian Franck's *Chronica, Zeytbuoch and Geschychtbibel*.⁴³ This surprising absence may be partially attributed to the

42 Glaser, p. 29.

43 Sebastian Franck, *Chronica, Zeytbuch vnd geschychtbibel von anbegyn biß inn diß gegenwertig MDXXXI. jar : Darin beide Gottes vnd der welt lauff, hendel, art, wort, werck, thun, lassen, kriegen, wesen vnd leben ersehen vnd begriffen wirt...* (Straßburg: Balthassar Beck, 1531).

German destruction of Strasbourg's municipal library in 1870, an unfortunate consequence of the Siege of Strasbourg during the Franco-Prussian War (1870-71); the building housed a renowned collection of medieval manuscripts (including chronicles and annals), Renaissance volumes, and Reformation archives, among other things. Assembling sufficient material to reconstruct the weather according to established standards has proven impossible for me at this time, mostly due to time constraints on the research project.

Sebastian Franck was born in Donauwörth, Bavaria in 1499.⁴⁴ He entered the University of Ingolstadt on 26 March 1515, where, upon joining Dominican Bethlehem College, he met Martin Bucer. Although the two may have attended Luther's Heidelberg disputation in October 1518, Franck is thought to have ordained as a priest and acted as such in Augsburg in 1524/25. His ordination proved temporary, as he appeared in Büchenbach in 1526 offering early services in the Evangelical style and in 1527, preached the Reform at Gustenfelden bei Nürnberg. In 1528, he married Otilie Beham, sister of Bartholomew and Sebalf Beham; her brothers were pupils of Albrecht Dürer. The Evangelical Reform did not prove satisfying to Franck for long, though, and after taking issue with the Lutheran community, he went to Strasbourg in the autumn of 1529.

Once in the Free Imperial City, Franck began to express what were considered radical religious views, and he is known to have been in contact with radical reformers Michael Servetus, Hans Biinderlin, and Kaspar von Schwenkfeld. The central tenet of his Christian witness was that personal and individual communion with God was the only acceptable foundation for the church; such a perspective was unacceptable to the Evangelical leaders of Strasbourg and they dismissed him from the city in late 1531 or early 1532. Before his departure, he published two volumes, *Türkenchronik* in 1530 and *Chronica, Zeitbuch und*

44 The following biographical summary is based on Robert Stupperich, 'Franck, Sebastian,' in *Neue Deutsche Biographie* 5 (1961), S. 320-321, <<http://www.deutsche-biographie.de/pnd11853467X.html>>, accessed 7 February 2016.

Geschichtsbibel in 1531. After several years in Ulm, where he continued to publish radical theological views, Franck moved to Basel and died in 1542 or 1543.

Much of *Chronica, Zeitbuch und Geschichtsbibel* is based on the 1493 Nuremberg Chronicle, with events of the late fifteenth century, early sixteenth century and early Reform added. Knowledge of Franck's date of birth and whereabouts means that he could not have personally witnessed some of the weather events he included. However, that the original document is available in its entirety for study and his personal presence in Strasbourg during its pre-publication period and its publication give it some strength as a primary source. Unfortunately, he did not include much information about the weather; there are only three pertinent entries which may be used here. As a result, less convincing sources must also be employed to support the creation of this weather description.

There are many edited volumes of manuscript originals containing information about the weather and assembling them together with Franck's incunabula will permit me to offer an approximate annual description the weather events in and near Strasbourg for the period.⁴⁵ Of these, the most relevant are those which were published in the city and take events there as their focus. They are Johann Jakob Meyer's *La Chronique Strasbourg*,⁴⁶ Father Martin Stauffenberger's *Annales der Barfuesser zu Strassburg, de anno 1507 biss 1510*,⁴⁷ *Les*

45 After Strasbourg's library had been bombed, Abbott Léon Dacheux and Rodolphe Reuss gathered the remaining fragments and published them in a four-volume series from 1887 to 1901. They are: Sébald Böheler, *I. La Petite Chronique de la Cathédrale. La Chronique Strasbourgeoise de Sébald Böheler*, ed. by Léon Dacheux, *Fragments des Anciennes Chroniques d'Alsace I* (Strasbourg: R. Schultz & C^{ie}, 1887); Daniel Specklin, *II. Les Collectanées de Daniel Specklin, Chronique Strasbourgeoise du seizième siècle*, ed. by Rodolphe Reuss, *Fragments des Anciennes Chroniques d'Alsace II* (Strasbourg: Librairie J. Noiriel, 1890); Jacques Trausch, Jean Wencker, Sébastien Brant, *III. Les Chroniques Strasbourgeoises de Jacques Trausch et de Jean Wencker. IV. Les Annales de Sébastien Brant*, ed. by Léon Dacheux, *Fragments des Anciennes Chroniques d'Alsace III* (Strasbourg: R. Schultz & C^{ie}, 1892); Jacob Twinger von Königshoven, Materne Berler, anonymous authors, and Sébastien Brant, *VII. Koenigshoven. Fragments de la Chronique Latine. VIII. Berler. Fragments de la Chronique. IX. Fragments de Diverses Vieilles Chroniques. X. Les Annales de Sébastien Brant*, ed. by Léon Dacheux, *Fragments des Anciennes Chroniques d'Alsace IV* (Strasbourg: R. Schultz & C^{ie}, 1901). Jacob Twinger von Königshoven's chronicle from the early fifteenth century was included in another collection edited by Karl Hegel.

46 Johann Jacob Meyer, *La Chronique Strasbourgeoise*, ed. Rodolphe Reuss (Strasbourg: J. Noiriel, 1873).

47 Frère Martin Stauffenberger, 'Les Annales des Frères Mineurs de Strasbourg, rédigées par le frère Martin Stauffenberger, économe du couvent (1507-1510)', ed. Rodolphe Reuss, *Bulletin de la Société pour la Conservation des Monuments Historiques*, II^e Serie, 18 (Strasbourg: R. Schultz & Cie, 1897), 295-314.

Éphémérides de Jacques de Gottesheim,⁴⁸ *Les Collectanées de Daniel Specklin*,⁴⁹ and 'Fortsetzungen des Königshoven. Straßburger Zusätze'⁵⁰ and 'Straßburger Jahrgeschichten (1424-1593)',⁵¹ both included in Franz-Josef Mone's *Quellensammlung der badischen Landesgeschichte*. As well, two pertinent Alsatian chronicles published before 1870 will be included: P.F. Malachias Tschamser's *Annales oder Jahrs-Geschichten der Baarfüseren oder Minderen Brüdern S. Franc*⁵² and Xavier Mossmann's *Chronique des dominicains de Guebwiller*,⁵³ the first from a Franciscan monastery at Thann and the second from the Dominican convent at Guebwiller. A discussion of these sources which follows here. Single entries from other sources will be included in the weather description, but will not be discussed as they are not central to it.

Authorship of *La Chronique Strasbourg* is attributed to Johann Jakob Meyer, a mysterious writer about whom not even birth and death dates are known; the chronicle at the core of the document is believed to have been first published in 1587. Relying heavily on Jakob Twinger von Königshoven's *Chronik* until the early fifteenth century, *La Chronique Strasbourg* gives a history of the city from its origins until 1711. It is divided into chronologically-ordered chapters, one each devoted to events concerning cloisters and other religious establishments, the dioceses, particular buildings, regulations, bishops, *ammeisters*, agreements between the Emperor and the City, military campaigns,

48 Jacques de Gottesheim, 'Les Éphémérides de Jacques de Gottesheim: Docteur en Droit, Prébendier du Grand-Choeur de la Cathédrale (1524-1543). Fragments publiés pour la première fois et annotés', ed. Rodolphe Reuss, *Bulletin de la Société pour la Conservation des Monuments Historiques*, II^e Serie, XIX, bk. I (Strasbourg: R. Schultz & Cie, 1898), 261-81.

49 Daniel Specklin, *Les Collectanées de Daniel Specklin, Chronique Strasbourgeoise du seizième siècle.*, ed. Rodolphe Reuss, *Fragments des Anciennes Chroniques d'Alsace II* (Strasbourg: J. Noiriel, 1890).

50 Franz-Josef Mone, ed., 'Fortsetzungen des Königshoven. Straßburger Zusätze', in *Quellensammlung der badischen Landesgeschichte*, 1 (Karlsruhe: C. Macklot, 1848), 252-80.

51 Franz-Josef Mone, ed., 'Straßburger Jahrgeschichten (1424-1593)', in *Quellensammlung der badischen Landesgeschichte*, 2 (Karlsruhe: C. Macklot, 1848), 138-45.

52 P.F. Malachias Tschamser, *Annales oder Jahrs-Geschichten der Baarfüseren oder Minderen Brüdern S. Franc. Ord. inßgemein Conventualen genannt, zu Thann*, I and II (Colmar: Hoffmann, 1864). For more information about Tschamser and his *Annales*, see Paul Weiss, *1516-1700, heurs et malheurs d'une ville et d'une province: selon les "Chroniques" de Malachie Tschamser, père-gardien des Franciscains de Thann* (Boofzheim: ACM Édition, 2000).

53 Xavier Mossmann, ed., *Chronique des dominicains de Guebwiller* (Guebwiller: G. Brückert; Colmar: L. Reiffinger; Strasbourg: Schmidt et Grucker, 1844).

catastrophes, and fires. Unfortunately, the original manuscript was destroyed with the Strasbourg archive in 1870. However, shortly before the fire, Rodolphe Reuss had copied much of it for the research project which resulted in his 1873 volume (that which was taken directly from Twinger was only cited) and the following paragraphs are based on his notes and conclusions.

Primary among these conclusions was the observation that the 1587 manuscript from which Reuss made his transcript was unlikely to have been the original. Instead, he suggests that it was a copy made for unknown reasons by Philippe Engler, secretary to Strasbourg's council of XV (see p. 155). Whether or not Reuss' suggestion is accurate, identifying the original author of *La Chronique Strasbourgeoise* is problematic due to the editor's disclosure that four or five distinct hands were visible in the original manuscript, dispersed among the chapters and occasionally on pages added after publication. The first handwriting stopped at a different date in each chapter; a second hand added to the first, the earliest date of which was 1511 and the latest 1611. A third hand added a few items from 1624 to 1628. A fourth hand started adding items from 1619, and apparently started to use the chronicle as a journal and records events until 1711. Reuss suspected the presence of a fifth hand in two or three isolated items recorded from years 1634 to 1642.⁵⁴

There is no way to determine if the author of the earliest handwriting in *La Chronique Strasbourg* was a witness to the weather events included in the manuscript nor to determine if all events from the period were included. With the manuscript's destruction, future exploration of the question is impossible. Nevertheless, the chronicle covers events which occurred during the entire period under study and, as such, provides information which merits its inclusion in the weather description.

The next two selections were included in a booklet donated to the Strasbourg municipal

54 Meyer, pp. 9-10.

library by the heirs of Professor Frédéric Reussner, who received it from his step-father, the former curator of the library M. André Jung (d. 1863). Both appear to be a partial copy of an original; the rest of the booklet contains material from the end of the sixteenth and beginning of the seventeenth centuries. Alsatian historian Rodolphe Reuss edited both selections into articles published in *Bulletin de la Société pour la Conservation des Monuments Historiques*. Of the first, the *Annales der Barfuesser zu Strassburg, de anno 1507 biss 1510* written by friar Martin Stauffenberger, only eight pages exist. Little is known of Stauffenberger other than what is available in the *Annales*, where he wrote that he was a novice in the Franciscan convent in Strasbourg in 1507 and became the monastery's Receiver on Saint Sebastian's Day (20 Jan) in 1510. He held this role until New Year's Day 1511.⁵⁵ Reuss offers a simple transcription of the pages, without commentary or edits; they cover events from 1507 to 1510, with the inclusion of an entry for 1482. With the only available edition a nineteenth-century transcription of a late sixteenth-century copy, there is no way of assessing the relationship of the surviving material to actual weather events. It may be an eyewitness account, but it is unlikely that confirmation will be achieved and provides only partial coverage of the period of research. Despite this, the author's role in Strasbourg's Franciscan monastery promises a sufficiently reliable witness to weather events from 1507 to 1510 for inclusion of entries in the weather description.

Another eight pages of the booklet held *Les Éphémérides de Jacob von Gottesheim*, which covered the years 1524 to 1543. The similarity in the number of pages with the previous source deepens suspicion that both *Les Éphémérides* and the *Annales* were partial copies of originals now lost. *Les Éphémérides*, though, offers clues that the copyist of both manuscripts is likely to have been a member of Strasbourg's *Rat*, as Gottesheim's papers were part of the official records of that body's secret councils and few others held access to

55 Stauffenberger, p. 296.

those archives in the sixteenth century.⁵⁶ Von Gottesheim was a doctor of law who received the Franciscan orders; he was made prebendary of the Great Choir in 1517, as attested by an annotation from the anonymous copyist.⁵⁷ Gottesheim remained a loyal Catholic throughout the religious conflict which followed. By 1522, he held the position of episcopal vicar and, as might be expected from one occupying that position, was requested in December of that year to develop the case against Matthias Zell for a charge of heresy. The case was developed, but not pursued (as will be discussed in Chapter Three, section c).⁵⁸ As the city began to follow the Reform, though, Gottesheim did not join the Catholic exodus but, rather, obeyed a municipal order to either become a citizen or leave the city by accepting citizenship on 1 February 1525.⁵⁹ Becoming a citizen of Strasbourg did not change his sympathies and he was accused of espionage more than once. Despite this, he remained on good terms with the city's elite and boasted of dining with Bucer, Zell, Capito, and Sturm; Katarina Zell invited him to her house for a good theological debate. He continued to enjoy the approval of William von Hohenstein and, upon the latter's death, the support of the new Bishop of Strasbourg, Erasmus von Limbourg. The last date for which Gottesheim is known to have been alive is 1543, and it may be assumed his death happened either later that year or shortly after.⁶⁰ The anonymous copyist was hostile to his source, however, and *Les Éphémérides* which survived may not be trusted for fidelity to the original. As well, the eight pages of material only cover from 1524 to 1543, the last few decades of the weather description. However, as in the case of Stauffenberger, Gottesheim's proximity to events in Strasbourg offer enough promise of an eyewitness to weather events that entries from *Les Éphémérides* are included in this weather description.

56 Gottesheim, pp. 261-2.

57 Ibid., p. 263. The copyist declares that he has seen the legal document which established Gottesheim in the role, which was held by the episcopal notary Michel Schwencker von Gerusbach. Ruess speculates that Gottesheim may have been born c. 1490 in order to hold this post.

58 Ibid., p. 264.

59 Ibid.

60 Ibid., pp. 264-5.

Daniel Specklin (1536-1589) was born and died in Strasbourg and there has been much scholarly interest in him. As he was unlikely to have remembered and recorded weather events at six years of age and younger, though, only a summary of his life and career will be provided here.⁶¹ Apprenticed in Strasbourg as both an embroiderer and a woodcarver, by 1555, he was in Vienna and toured Anvers, northern Germany, Denmark, and possibly Sweden in 1561. By the end of that year he was in Austria, where he met Hermann Schallantzer, entered his service and became an engineer and architect. This proved to become the foundation of his career, as he was involved in building the fortifications of Ingolstadt in 1576. The next year, he was named city architect of Strasbourg, a post created especially for him. He was popular throughout Alsace and contributed to the fortifications of Ensisheim, Basel, Lichtenberg and Heilbronn, among others. Although written on behalf of Strasbourg's *Rat*, along with two other books (*Architectura von Vestungen* and a lost volume on the improvement of the city's fortifications), requests for edits and amendments delayed the completion of his chronicle. Unfortunately, Specklin fell ill and died before developing his collection of extracts and personal memoirs beyond a chronologically-ordered list.⁶²

The disorder of the initial collection is reflected in *Les Collectanées de Daniel Specklin, Chronique Strasbourgeoise du seizième siècle*, edited by Rodolphe Reuss. The original was lost in the fire of 1870, leading to a community endeavour from which emerged a compilation of eight different manuscript particles.⁶³ Long extracts came from a handwritten volume written by André Silbermann in the eighteenth century, donated to Strasbourg's municipal library in 1872 by his descendent Gustav Silbermann (Pp. Silb).⁶⁴

61 For more information on Specklin, see Albert Fischer, *Daniel Specklin aus Strassburg (1536 - 1589): Festungsbaumeister, Ingenieur und Kartograph* (Sigmaringen: Jan Thorbecke Verlag, 1996).

62 Specklin, pp. 9-10.

63 Specklin, pp. 2-18.

64 For the weather description, the specific source of each entry from Specklin will be indicated by these abbreviations.

Another heir, Louis Schnéegans, donated his father's papers to the library, among the thousands of which were considerable sections of *Les Collectanées* (Pp. Sch). Other fragments arrived and/or were culled from works by André Jung (Pp. Jg), T.W. Roehrich (Pp. Rh), J. Wencker (W), Schnéegans (Pp. Sch), an anonymous eighteenth century chronicler (Exc. Sp), Schilter's glosses to an edition of Königshoven (K.-S. G), and Frédéric Piton (Pp. P).

Each collection of fragments had its own peculiarities.⁶⁵ Schnéegans' included the *recto* and *verso* of the page, Jung noted which folio (but not *r* or *v*), Roehrich and Wencker only include the chronological indication, without folio number; Silbermann varied among them all. Reuss related the manner in which he heroically proceeded: even though the chronological order wasn't absolutely followed by Specklin, he put the folios in order, as his goal was to reproduce the original format, and inserted the the un-numbered folios according to their chronology. Linguistically *Les Collectanées* is also something of a pastiche: Schnéegans and Jung attempted to faithfully reproduce Specklin, Wencker and Silbermann before them 'modernised' his language (to eighteenth-century standards), and Schilter and the anonymous copyist of *Les Collectanées* in the eighteenth century both abridged their selections, condensing them significantly. Roehrich both abridged and modernised Specklin's original in the nineteenth century, as did Piton; this last translated the German text to French, as well. As a result, Reuss used Jung and Schneegans as found, in an effort to approach Specklin's original style (only punctuation was edited). For the others, Reuss authorised himself to edit their orthography but respected their grammar and syntax.

The haphazard manner in which the material of *Les Collectanées* arrived into the editorial control of Rodolphe Reuss makes it variably reliable for the purposes of this weather

65 Specklin, pp. 18-9.

description. In his volume, Reuss indicated the source of each extract and this information will be included with each entry used in this weather description, using the abbreviations introduced on pages 73 and 74 (Pp. Silb, etc). Moreover, other than Königshoven's *Chronik*, it is impossible to give an account of the sources Specklin used for events he did not personally witness, although the dates his life spanned suggests they may have included interviews with eyewitnesses. Specklin's status and role in Strasbourg civil society combines with his relative proximity to events, therefore, to allow the inclusion of entries from *Les Collectanées* in this weather description.

The authors of 'Fortsetzungen des Königshoven. Straßburger Zusätze' and 'Straßburger Jahrgeschichten (1424-1593)' are unknown, as are the authors of sources compiled into the following two volumes. As is unfortunately also true for *Annales oder Jahrs-Geschichten der Baarfüseren oder Minderen Brüdern S. Franc.* and *Chronique des dominicains de Guebwiller*, all that time permits is a few words about Franz-Joseph Mone (1796-1871), the editor of the volume wherein they are published, *Quellensammlung der badischen Landesgeschichte*.⁶⁶ Born in Mingolsheim bei Bruchsal, a town north of Karlsruhe, itself north of Strasbourg along the Rhine, Mone held a position as historian at the University of Heidelberg and on the board of the institution's library. He was known for his work with Old German literature and language, as well as the *Zeitschrift für die Geschichte des Oberrheins* and the collection *Quellensammlung der badischen Landesgeschichte*. Following his career there, he moved to Karlsruhe, where he lived as a private scholar, edited *Karlsruher Zeitung*, and served as the archivist and director of the Baden Generallandesarchiv until his retirement in 1868. Although little is known about the authors or the sources he presents in *Quellensammlung der badischen Landesgeschichte*, their focus on Strasbourg and surroundings allow relevant entries to be included here.

66 This paragraph is based on Hansmartin Schwarzmaier, 'Mone, Franz Joseph,' in *Neue Deutsche Biographie* 18 (1997), p. 32 f, <<http://www.deutsche-biographie.de/pnd118861476.html>>, accessed 7 February 2016.

François-Antoine Tschamser (rel: Malachias; 1678-1742), author of *Annales oder Jahrs-Geschichten der Baarfüseren oder Minderen Brüdern S. Franc. Ord. inßgemein Conventualen genannt, zu Thann*, became the Father-Guardian of the Franciscan monastery in Thann, on the other side of the Grand Ballon from Guebwiller, and served in that capacity from 1722 to 1739. During that time, he gained responsibility for ordering the Franciscan convent in Haguenau as well. Using unidentified chronicles from Franciscan archives and, for recent events, oral accounts from his friars and visitors, Tschamser assembled a chronicle of events in Thann and the wider region of Alsace from 1182 to 1700; he first published the four volumes of his work in 1724. This edition is the third republication and the earliest available. Unfortunately, he also included items from other regions or the same facts under more than one date. Many of the regional weather events he cited, though, are regularly independently corroborated by other sources and the entire period of research is covered by events in the *Annales*. These considerations combine to allow for sufficient confidence to allow Tschamser's entries to be included as evidence in the weather description.

Xavier Mossmann (1821-93), editor of *Chronique des dominicains de Guebwiller*, identifies his source as a chronicle found in the library at Colmar, where it was part of a collection inherited from the library of the Imperial Abbey at Murbach, a noted Benedictine monastery in the southern Vosges mountains between Colmar and Mulhouse.⁶⁷ The last author of the chronicle is reported as prior Séraphin Dietler, whose final entry was in 1723. However, Dietler also edited the chronicle into the form adopted by Mossmann, with neither editor identifying foundational documents. Like many other sources used here, the text is doubly removed from events and segments may have been copied from the chronicle of Thann. Nevertheless, entries may be used to corroborate other accounts and will be included to provide indications of the scope and nature of regional weather events.

⁶⁷ Mossmann, Dedication, p. 3

Due the inadequacy of available documentary sources from Alsace and the time constraints on these revisions, which impede further primary research into either the natural environment or historical archives,⁶⁸ a formal weather reconstruction for Strasbourg and Alsace is not possible at this time. However, the purpose of this section is to provide information about weather events and their effect on human society during the late fifteenth and early sixteenth centuries and although a formal weather construction would be ideal, two viable substitutions are available. The first is the availability of existing weather reconstructions which include a larger geographical range than the bioregion of Alsace, such as those for southwestern Germany and northern Switzerland, or, even larger, such as those for central Europe. Although local weather conditions may always present an exception to regional or semi-continental climatic averages, geophysical zones are atmospherically continuous and average conditions for larger areas will provide useful information. Any precision lost in using regional weather reconstructions may be balanced by the second substitution for a weather reconstruction: the documentary sources mentioned above. Although they are not acceptable for a rigorously created weather reconstruction according to historical climatological standards, together they provide an adequate description of annual weather conditions in the bioregion to confirm a role for

68 Other sources which could be assessed are Bernhard Herzog, *Chronicon Alsatiae. Edelsasser Cronick unnd außfürliche beschreibung des vntern Elsasses am Rheinstrom, auch desselben fürnemer Stätt, als Straßburg, Schletstatt, Hagenaw, Weissenburg, und anderer der enden gelegener Stätt, Schlösser, Clöster, Stifft, Märckt, Flecken vnd Dörffer. Als auch der Landgraffschafft, vn Bisthumbs Straßburg gehabter Landgraffen, Bischoffen, sampt ermeldten Lands Fürstenthumben, Graff vnd Herrschafften, Adenlicher, vnd Burgerlicher Geschlechter, jhrer Genealogien, Stämmen, geburts Linien, Wappen vnd Cleinodien. Darinn jhre her vnd ankunfft, leben, handlung, thaten, auch darinne von anfang dessen biß auff gegenwertiges 1592. Jar gedenckwürdigen vorgangene geschichten ... beschrieben, vnd ... an tag gegeben worden.* (Strasbourg: 1592) and Michaelis Kleinlavveln, *Strassburgische Chronick, Oder Kurtze Beschreibung von ankunfft, Erbaw: und Erweiterung der Statt Strassburg, wie auch vom leben, Regierung, und Absterben der Bischoffen daselbsten: So dan Von verenderu(e)g dess Regiments, den ersten Statt: und Ammeistern, buss auff die jitzt Regierende herren, und anderen denck, wu(e)rdigen handeln, die sich bey diser Statt von Jahr in Jahr in Fridens (et) unnd Krieg: zu Thewren: und Wolfeilenzeiten, in Geist: und Weitlichen sachen zugetragen. Mit fleiss zusammen gebracht Durch einen Liebhaber der Teutschen Pottery* (Strasbourg: Johann Carolo, 1625). Both were written decades after the weather events in question, though, and were not of immediate interest. Written during the desired time frame but farther from Strasbourg is Johannis Knebel, "Johannis Knebel capellani ecclesiae Basiliensis diarium. Hans Knebel, des Kaplans am Münster zu Basel, Tagebuch. Sept. 1473 – Jun. 1476", in *Basler Chroniken*, eds. Wilhelm Vischer and Heinrich Boos (Leipzig: S. Hirzel, 1880), 1-436.

those conditions in Strasbourgeois and, occasionally, Alsatian society.

A pertinent regional weather construction for this research project is that published by Oliver Wetter and Christian Pfister in 2011, which features a 517-year spring-summer annual temperature reconstruction based on twenty-five partial series of winter grain harvest starting dates.⁶⁹ The focus of the study was on Basel and surroundings, with weather information gathered from the Swiss Plateau, the northern foothills of the Jura mountains, the Upper Rhine Valley, and the Swabian Alps in southwestern Germany. Their data is partly based on harvest related bookkeeping by institutions such as hospitals or municipalities, and partly upon early phenological observations. Evidence was evaluated and verified, with extremely early or late harvest dates corroborated with other narrative documentary reports. Then the data was sorted into four types (wage payment dates, tithe auction data, historic phenological data, and phenological network observations), with an extensive discussion about the nature and viability of each type. For the period from 1454 to 1705, the data was mostly drawn from the books of expenditures kept by the Basel hospital in which wages paid to harvest workers were recorded on a daily basis. After correcting the evidence for dating style, data type, altitude, and, in the case of tithe auction dates, estimating the start of the harvest after the tithe auction date, the twenty-five series were merged into a single long series. Finally, this single long series was calibrated with the homogeneous HISTALP temperature series for the period of 1774 to 1824 and verified with the same for the period from 1920 to 1970. For the purposes of their research, the scientists then compared their results with temperature reconstructions from Switzerland, Germany, Austria, France, Hungary and Czech Republic, as well as fluctuations in lengths of the Lower Grindewald Glacier in the Bernese Alps after 1500 and the Aletsch glacier, whose fluctuations are primarily determined by air temperature and secondarily by

69 Oliver Wetter and Christian Pfister, 'Spring-summer temperatures reconstructed for northern Switzerland and southwestern Germany from winter rye harvest dates, 1454-1970', *Climate of the Past*, 7 (2011), 1307-26.

precipitation. Supporting Wetter and Pfister's findings, there were significant correlations among neighbouring regions and diminished correlations with increasing distance from Switzerland, while fluctuations in glacial length were better reflected in the newly-produced Basel winter grain harvest date series.

Of the information produced by Wetter and Pfister, the most useful for my research is that found in a table reconstructing average temperature anomalies from March to July 1545 to 1970 (see Illustration 10). The table includes an 11-year moving average of reconstructed temperature anomalies, with confidence bounds drawn on a $\pm 2 \times \text{Sigma}$ threshold.⁷⁰ From 1473 to 1541, there are clear indications of extreme weather events during the spring and early summer in the region, particularly in 1473, 1483, 1511, and 1541.

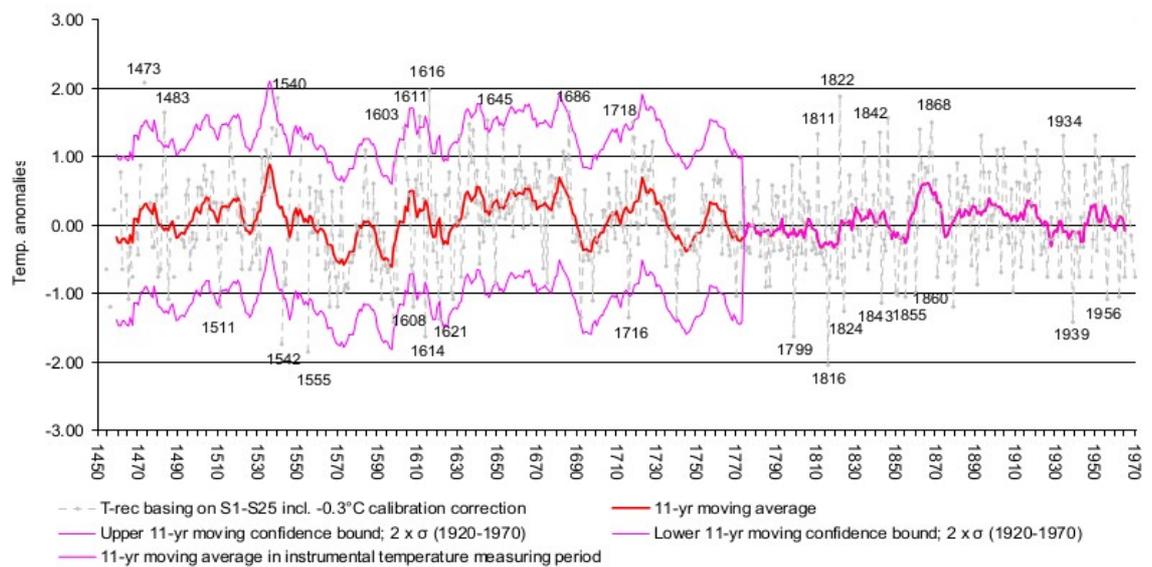


Illustration 10: Mean March–July temperature anomalies reconstruction basing on Basel WGHD series 1454–1970 (from Wetter and Pfister 2011)

As demonstrated by the comparisons made by Wetter and Pfister, regional weather behaviour, no matter how brief a specific event may be, does not occur in isolation from neighbouring regions. This renders a brief mention of global and continental contexts advisable here. Prior to the advent of anthropogenic climate change, changes in the

⁷⁰ Moving averages are commonly used to model data sets with only one variable; they serve to mitigate the effect of errors or random shocks on the averages. A $\pm 2 \times \text{Sigma}$ threshold means that 95% of the values lay within 2 standard units of the average.

terrestrial climate were linked to the degree of radiation arriving on earth from the sun; the volume of radiation is affected by sunspot activity. Low sunspot activity indicates less radiation arriving on Earth, which means a cooler climate, and the reverse for high sunspot activity. From a climatological perspective, then, the context of late medieval / early modern weather events occurred in diminution of solar activity from 1460 to 1550 known as the Spörer Minimum (see Illustration 11), itself part of a lengthier half-millennium cycle of cooling average temperatures known as the Little Ice Age.

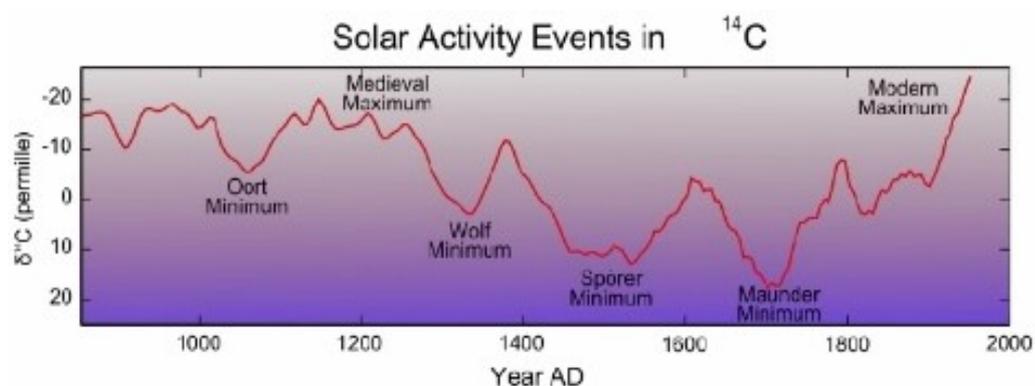


Illustration 11: Solar Activity in C14 (from McInnes)

The period currently referred to as the Little Ice Age (LIA) is generally accepted to have begun in Central Europe at approximately 1300 CE, although there are indications that it may have been part of the general global cooling that took place from the turn of the millennium until the mid-nineteenth century.⁷¹ The term is used as a reference to three points of maximal European glacial expansion that took place in 1350, 1650 and 1860 CE. It must be noted that the period was not one of unremitting cold weather; rather, it was characterized by a series of rapid temperature fluctuations, weather variations and extreme weather events, with the most pronounced phase from 1550-1700 (the Maunder Minimum). Moreover, the impact of climate cooling was different in the Mediterranean basin than in northern Europe, as befitting different (although adjacent) regional climates. Despite this, European temperatures show an average decrease of 1° C during the LIA as

⁷¹ Brázdil, pp. 388-92.

compared to late-twentieth century average temperatures and, in regions of central Europe, as much as 2° C below average during the Maunder Minimum, the Little Ice Age's coldest period (see Illustration 12).

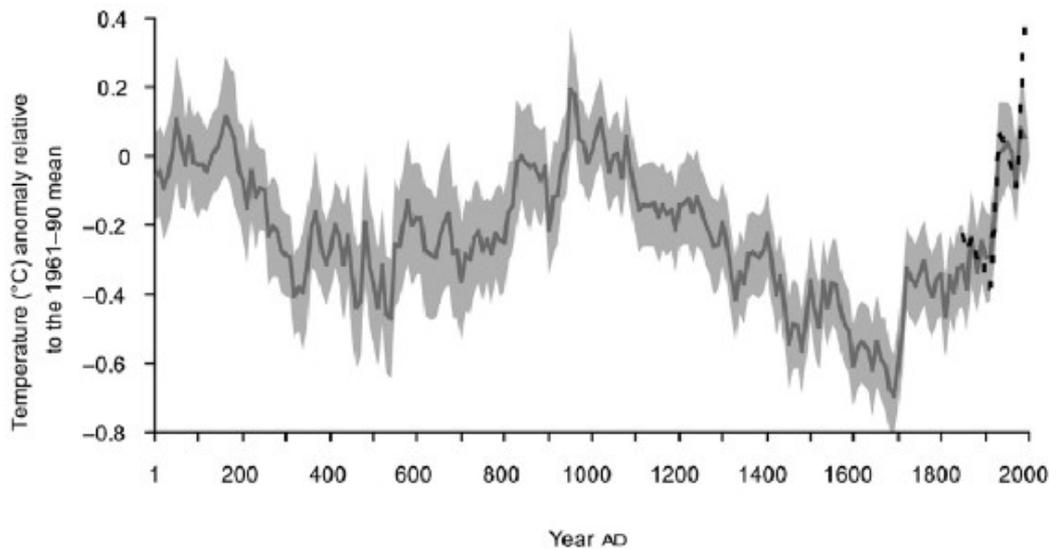


Illustration 12: A new reconstruction of temperature variability in the Extra-Tropical Northern Hemisphere (from Ljungqvist)

The period of this research takes place during the Spörer Minimum, the second lowest trough of sunspot activity and second coldest average terrestrial temperatures during the most recent millennium. Extreme weather events were and are not unusual for Alsace, whose climate is characterized as a mixture of maritime and continental, or semi-continental. The frequency of such extreme weather events, however, is contextualized by the wider climatic context of Europe, the northern hemisphere, and the planet. Moreover, the relationship between weather and climate is not direct: as accustomed weather patterns change under the influence of changes in atmospheric and marine temperatures, a warming climate may still produce extremely cold temperatures and a cooling climate, as was under way during the last half of the fifteenth century and early part of the sixteenth century, may also produce heat waves such as that of 1540. For more precise information about the weather of Strasbourg and Alsace, attention now turns to narrative evidence

found in documentary sources, which will be related on a chronological basis.

While the main focus of this study is from 1509 to 1541, many of the individuals whose works serve as primary source material for this research project were born in the fifteenth century and would have endured the extreme weather of the last decades of the fifteenth century, as well as that of the first decades of the sixteenth. To have a grasp of attitudes and approaches to weather held by people who engaged in annual weather rogations or suffered with the Dancing Plague, as well as understanding the impact of changes in the religious views of nature introduced with evangelical Reform, some information is needed about the weather which occurred earlier in the Spörer Minimum. Therefore, this description of weather and the role it played in social events in Strasbourg and Alsace begins with the extreme weather conditions of 1473.

In 1473, notice of spring's early arrival was served when trees bloomed in February, grapevines bloomed in March and April, cherries were mature in March, and other fruit arrived in May.⁷² Winter grain harvesters employed by the Prince-Bishopric of Basel began their work on the earliest date of 517 recorded years studied.⁷³ Grapes matured in June; crops ripened before St John's Day (24 June/3 July) and the grape harvest occurred in August – an event which usually took place in late September or October. Harvests of fruit and wine were good, but root and green vegetables were expensive, implying these crops were unsuccessful. The summer was hot; fires burned the forests of Mont Sainte-Odile (S. Ottilienberg) and the cloisters, with damage to the prestigious Abbey;⁷⁴ the Schwartz Wald on the east side of the Upper Rhine Valley also burned, as did forests farther away, like the

72 *Anno 1473 huben im februar die baeum an zu blühen, im martio und aprili die reben, im maio hatte man früh obes, im juni zeitige trauben, vor Johanni die ernd, im august herbst. Frucht und wein gutt, das viertel zu 3 und 4 schilling, den ohmen zu 15, 16 biss 18 pfennig. Kraut, rettich, ruben, waren theur, man gab 3 ohmen wein für einen sester ruben. Der sommer heyss, dass die wälder, S. Ottilienberg und closter, brannten. Im september und october blüheten die baeum. Im martio hatte man zeitige kirssen.* Specklin, p. 461, Op. Cit. 2129 (Exc. Sp). As a comparison, it may be helpful to know that, on average, twentieth-century cherry trees in Alsace came to full bloom during the latter half of April.

73 Wetter and Pfister, p. 1318.

74 *1473 Odilienscloster verbrannt.* Specklin, p. 461, Op. Cit. 2131 (Pp. Schn). See also Bischoff, p. 265.

Böhmer Wald (*Bohemian Forest*) and the Thüringer Wald (*Thuringian Forest*).⁷⁵ The trees bloomed again in September and October. On 8 August, Strasbourg' *Rat* commanded a small weather rogation for the following day.⁷⁶

Alsations were not alone in their experience of this extreme weather event; documentary and proxy evidence shows much of Europe north of the Alps was affected by the heatwave. On the other side of the Vosges Mountains, less than 130 kilometres to the northwest, the citizens of Metz found cherries available for purchase on the ninth day of May, and a month later, local grapes were in *verjus* (soft enough to press for the sour acidic juice used in medieval cuisine). The high temperatures also had deleterious consequence for the Messiens: during the last ten days of July, chronicler Jehan Aubrion describes many people as dying from the heat, and when a troop of soldiers went out from the city to harry enemies from Lorraine, he reports that the heat killed eight horses and many of the men returned sick.⁷⁷

A quick survey of the historical climatological database *Tambora* for the year 1473 suggests that the heat wave may have been a continental event, as exceptionally hot seasons dominate the results. Further study of this single weather event could be warranted, as chroniclers as far distant from each other as those in the German-speaking cities of Kitzingen, Nuremberg, Eisfeld, Regensburg, Halle, Koblenz, Konstanz, Ulm, Göttingen, Lindau (*Bodensee*), and Strasbourg (*Straßburg*), as well as those in the Silesian towns of Świdnica (*Schweidnitz*), Strzegom (*Striegau*), and Legnica (*Liegnitz*), mention

75 *Der dürr summer. Fas tausent cccc.lxxiii. was der dürr summer darin vil wäld und mäder vom himmel angezündt verbrannen, doch geriet all ding wol genügsamtlich, der Böhemer wald brann xiiii. Wochen. Item der Thüringer wald, Schwartzwald, auch die wald in dem gebürg, und ander Etsch. Auch marckt und Dörffer, dann alle ding was auss mangel dess regens unnd übriger hitz grübendürr, war ein das feür kam, war diss jar von erzettet.* Franck, Fol. CCX'.

76 Gabrieli Signori, 'Ritual und Ereignis: Die Straßburger Bittgänge zue Zeit der Burgunderkriege (1474-1477)', *Historische Zeitschrift* 264 (April 1997), pp. 281-328 (282).

77 Jehan Aubrion, *Journal de Jehan Aubrion, bourgeois de Metz, avec sa continuation par Pierre Aubrion, 1465-1512*, ed. by Lorédann Larchey (Metz: F. Blanc, 1857), pp. 50-1. Note that during the twentieth century, wild cherries in Lorraine ripen on average in June, and the same stage of grape development tends to arrive in early- to mid-July.

abnormally hot temperatures and abnormally low levels of precipitation.⁷⁸ Even further afield, the *Ustyug Letopis* from northwestern Russia also documents severe droughts and large fires for 1473.⁷⁹

In 1474, strong winds are reported in the Schwarzwald, east of Strasbourg. They caused property damage.⁸⁰

La Chronique Strasbourg relates how, in the summer of 1480, rain fell steadily for nine weeks and on the evening of Mary Magdalene's Day (22/31 July) the sheaves in the fields were swept away by flooding waterways. The Rhine and the Ill were so swollen that between Basel and Strasbourg, none of the water mills remained and several people drowned. Many houses and villages were destroyed and people had to cling to trees to survive. The water carried waste, with worms, snakes, frogs, leeches and other light vermin which were thought to have poisoned the air and earth, leading to many deaths.⁸¹

78 This sample was provided by a quick survey of 1473 on the database [www.Tambora.org](http://www.tambora.org), <www.tambora.org> [accessed 28 November 2012]. Tambora is the result of a partnership between the Dept of Physical Geography at the Freiburg University Library, the Leibniz Institute for Regional Geography, the Esslingen University of Applied Sciences, and the Institute of Geography at the University of Augsburg. It is a database for original text quotations providing climate information from historical sources, together with bibliographic references and the extracted places and dates. The database is searchable for location, date, climate phenomena, and other keywords. There are over 270,000 sources, as of 10 January 2016. Along with the National Oceanic and Atmospheric Administration (NOAA) database in the United States and Euro-Climhist in Switzerland, Tambora is one of the largest databases for historical climatological information in the world. Tambora was selected for the survey of 1473 as it provides the most information for each source, allowing for a greater possibility of finding the original document. However, as with all databases of this size, it is best used to provide access to historical sources which must then be individually verified.

79 *Letopis* are chronicles from medieval Slavic regions; the *Ustyug Letopis* record events from the city of Ustyug (today known as Veliky Ustyug (*Great Ustyug*)), located at the confluence of the Sukhona and Yug Rivers. Vyacheslav N. Razuvaev and others, *Extreme Heat Wave over European Russia in Summer 2010: Anomaly or a Manifestation of Climatic Trend?*, poster presentation at Global Environmental Change AGU Focus Group annual fall meeting, session entitled *Bringing Together Environmental, Socio-Economic and Climate Change Studies in Northern Eurasia*, 15 December 2010 <http://neespi.org/web-content/meetings/AGU_2010/Razuvaev-poster.pdf> [accessed 28 November 2012].

80 *Der gross sturmwindt, S. Peters windt genant. In dem M.CCCC.LXXIII. entstünd an S. Peter und Pauls tag ein wind der vil gebeüw, heüsser, stedel, und die kirchen S. Ulrich zü Augspurg einwarff, den Pfarherr und sein gsellen mit. xxx. menschen erschlug der fall züschmettern, vil wald von dem feür über bliben, riss er mit der wurtzel auss darnider, und wert von Reyn biss in Hungern, am Reyn und ander sswaversenckt er vil schiff mit hab und leüt.* Franck, Fols. CCX^t-^v.

81 *Do man zalt MCCCCLXXX ior, zu summerzyten, ging an ein regenwetter, dass wert nün wochen lang unnd wurden alle wasser so gross an Marie Magdalene abent dass die garben uf dem veldt darvon furen. Der Rhyn un Ill wurden auch so gross dass zwischen Basel und Strassburg kein müle uf dem wasser blibe und uf dem landt ertruncken vil lüt. Vil hüser und doerffer wurden verderbet und musten sich die leut uf den boumen enthalten, das wasser bracht auch vil wustes mit sich, von gewürme, schlangen,*

Silbermann's notes on Specklin's *Les Collectanées* indicate that the architect mentioned the flood, albeit with an emphasis on the city's fortifications: Specklin had included a note that sixty fathoms of the city walls fell down.⁸² The harvest failed that year, and for the following three years.⁸³ Stauffenberger mentions a flood in Strasbourg in 1482 which caused deaths and dearth.⁸⁴ In 1484, supportive weather conditions contributed to an abundant harvest in and around Strasbourg, according to both Meyer's *La Chronique Strasbourgeoise* and Specklin's *Les Collectanées* – although they report different prices for wine.⁸⁵

The winter of 1491 was very cold; the Rhine froze and late frosts in spring hurt the grapevines and grain,⁸⁶ causing the cost of grain to rise steeply. 1490, 1491, and 1492 are noted as years of harvest failure by Blickle, Bischoff, Cunningham and Grell.⁸⁷ 1493 saw another rise in grain prices; since the region of Alsace was a net exporter of grains,⁸⁸ this

froesch, egeless, und anderem ungezifer, dass on masse was und vergiffte den lufft und das ertreich das dernoeh ein grosser sterbet erfolgete. Meyer, p. 122.

- 82 (Grosses Wasser.) *Unter even dem 1480ten jahr wird in Specklin's Collect. Mscr. Bey dem damaligen grossen wasser even dasjenige angemerkt, was schon bey 1421 erinnert worden ist, dass nemlich die stadtmauer unter St. Elisabethen-thor bis an das Frauenbrüder-closter bey 60 klafter lang durch die fluth niedergedrissen wurde. An diese wieder neu aufgerichtete mauer wurden zween grosse schoene thürme gebauet, deren jeder oben mit zinnen, dahinter mit einem umgang versehen und mit einem dach von bunten ziegeln bedeckt war.* Specklin, p. 466, Op. Cit. 2150 (Pp. Silb).
- 83 Wencker, p. 260, no. 2977; Peter Blickle, *The Revolution of 1525: The German Peasants' War from a New Perspective*, trans. by Thomas A. Brady, Jr. and H.C. Erik Midelfort (Baltimore and London: The John Hopkins University Press, 1985), p. 72.
- 84 *Item anno 1482 wass ein gross wasser, dessgleichen kein menschen wusste zu gedencken und zu Strassburg fiele der thuere wal an der Steinstrassen von dem wasser, auch so kam daruff ein gross sterbet und theurung, dass gross noth uff erdrichen.* Stauffenberger, p. 306.
- 85 *Do man zalt MCCCCLXXXIV ior was ein grosser herbst and wuchs guter wein, des gab man ein omen, den besten, umb sechtzehnen pfenning, unnd darunder ein schiling pfenning.* Meyer, p. 122; (*Wohlfeile Zeiten.*) *Anno 1484 galt der ohmen guter wein zwantzig pfennig, landwein sechs oder sieben pfennig. Item ein ohm umb ein ey. Item, umb gotswillen, ein viertel frucht zu drey schilling. Allen spitaelern und cloestern gab man wein genuf umsonst. Wurden auch viel gebaeuer von eitel wein aufgeführt.* Specklin, p. 467, Op. Cit. 2155 (K.-S. G).
- 86 (*Kalter Winter. Krieg mit den Franzosen. 1491*) *Item do man zalt rc. 1491 uff S. Bastians tag (20/30 Jan) do was der Rin überfrozen ob der brück bis zü der pfalczs uff hin und an die bruck abher, und brach das is selber und für hin weg in der nacht alsamen, und fielen 30 schnee öüch uff das selb jor und me, die man nit sach in der nacht. In dem meygen do fiel ein grosser schnech und nam ettlich reben, und uff montag vor der ussart do kam ein ruff und erfrozt die reben und ettliche korn-acker und nüess.* Mone, 1, p. 300, Op. Cit. 86.
- 87 Blickle, *The Revolution of 1525*, p. 72; Bischoff, p. 69; Andrew Cunningham and Ole Peter Grell, *The Four Horsemen of the Apolocalypse: Religion, War, Famine and Death in Reformation Europe* (Cambridge: Cambridge University Press, 2000), p. 15.
- 88 Scott, p. 244.

regional rise in prices implies adverse local conditions. In 1494, Alsace descended into famine.

Conversely, 1495 had a very good grape harvest, such that the harvesters could not take them off the vine quickly enough.⁸⁹ The harvest of 1496 was adequate to meet expectations. Also, despite the flooding of the Rhine that year, which threw down a tower in the city wall and caused damage to the Cathedral, Strasbourg's bridge across the Rhine survived.⁹⁰ However, grain prices rose in 1497, again implying local shortages.

The turn of the calendar to 1500 did not usher in good weather conditions: Tschamser's *Annales* mention that there was widespread harvest failure that year due to cold temperatures, excessive rain, and hail. This led to a rise in grain prices in 1500 which carried over to 1501. According to a chronicler in the convent at Thann, 1501 was a year of need and tragedy as famine ruled in Alsace and in Germany.⁹¹

After a painfully cold winter in 1503, excessively high temperatures and drought endured from 16 May (26 May) until 2 July (12 July) and in places until 10 August (20 August).

The utter absence of rainfall severely damaged crops and led to a summer famine in Alsace. Such hot and dry conditions are ideal for grapes, however, resembling their native Mediterranean climate, and while the wine harvest was good, it was disastrous for wheat, rye, and barley - the caloric foundations of the sixteenth-century Alsatian diet. Domestic animals also suffered and died, particularly pigs. Tschamser's *Annales* mentions that days

89 *Anno MCCCCXCV was so ein grosser herbst das man nit vass genung bekommen kont den weyn uff zu heben.* Meyer, p. 123.

90 (*Wetter schlaegt in's Münster.*) - Anno 1496, den 6. hornung, schlug das wetter ins münster, datt grossen schaden. Specklin, p. 475, Op. Cit. 2176 (Pp. Sch); *Do man zalt MCCCCXCVI ior kam aber ein gross wasser in wynachtfurtagen, das werte wol dry wuchen, das der Ryn, die Brusch und Ill so gross wurden, als iemols zuvor.* Meyer, p. 123; *1496 war ein grosser Rhein, dergleichen in vielen Jahren keiner gesehen worden ist, warf zu Straßburg ein grossen Thurm und geschah sonst aufden Rhein übertreffend großer Schaden.* Heinrich Steinhöwel and Jakob Köbeln, *Beschreibung einer Chronic Von anfang der Welt bisz auff Keyser Friderich den Dritten knrtz Suñirt vor Jam durch ... Hern Heinrichen Steinhöwel Doctorn Stattartz zu Vlm auszgezogen vnnd gemacht. Vnnd ietzo durch den Erfarnen H. Jacob Koebeln Stattschreiber zu Oppenheim an etlichen Ortenn gemeret vnd auff Keyser Carlen den V. erstreckt. Mit anhang beschreibung der zeit Jsidori* (Franckfurt am Meyn: Christian Egenolff, 1531), [VD16 S 8811], fol. XLV^v.

91 Tschamser, I, p. 702.

of repentance and fasting were organized, as well as processions and rogations, in efforts to bring rain and avert further evils.⁹²

Similar conditions prevailed for the next four years. In summer 1504, there was extreme heat, drought, wildfires, and a good wine harvest.⁹³ For winter 1505, although generally mild temperatures prevailed, snow covered the ground for most of February; a quick melt in March led to floods. Heat and aridity once more characterized the summer, with severe consequences (only a third of the beasts survived, and a number of humans also perished).⁹⁴

1506 and 1507 continued the trend, with hot and dry weather bringing good wine harvests.

Heavy storms occurred in both summers. In 1506, despite significant damage caused by a hailstorm on the Sunday after St. Bartholomew's Day (24 August/3 Sept),⁹⁵ the harvests of produce and grains were also successful.⁹⁶ However, in 1507, excessively high

temperatures and severe storms such as those on 9 June (19 June) and the Monday before Saint Bartholomew's Day (24 August/3 Sept)⁹⁷ once again caused dearth in the bioregion.

The storm reported on the night of 29 June (July 9), Saint Peter and Paul's Day, brought

92 *1503. Der Anfang dieses Jahrs hat sich wider mit einer außserordentlich kalten und herben Wintersfrost angelassen, welche auch eine geraume Zeit gewähret und Reben und anderen Früchten hart zugesetzt, auch ziemlich Schaden gethan. (...) Dies Jahr war auch ein grausamb hitziger und heyßer Sommer eingefallen, daß aus Mangel des Regens und wegen der allzugrosen, ungewöhnlichen Hitz alle Gewächs, sowohl die Bäum, Reben, als auch die liebe Früchten und das Gras verdorreten und verbrannten. Dahero entststuende ein großer Mangel und Theurung im Land und andertswerths; auch litte man ein großen Schaaden an dem Vieh, absonderlich an den Schweinen, deren hin und wider gar vil crepirten. Obgemelte Sommerhitz hat hierumb gewehrt von S. Theobaldi Tag an bis an den dritten Sonntag nach Pfingsten, das ist von dem 16. Maij bis den 2. Julij, daß es kein Tropfen geregnet hat; an etlichen Orthen währte solche Hitz bis nach Sanct Laurentij, da man dan allenthalben Bett und Fasttäge, auch Processionen und Kreutzgäng angestellt, umb ein Regen zu erlangen und weiter Uebel abzuwenden.* Ibid., pp. 702 and 704. The 1503 weather excited similar comments in Mossmann, although they may have been copied from Tschamser or his sources. Mossmann, pp. 97-8.

93 *Anno MDIIII was ein gutter herbst und galt ein omen wins fünfzehen pfennig, an ettlichen orten achtzehen und hoechsten zwainzig pfening.* Meyer, p. 123; Tschamser, I, p. 706.

94 Johannes Stedel, *Die Strassburger Chronik des Johannes Stedel*, ed. by Paul Fritsch (Strasbourg: Sebastian Brant-Verl, 1934), p. 112.

95 *Anno MDVI uff sontag von Bartolomei umb vier urhen kam ein gross ungeheuer wetter, mit dondern, blixen und hagel und fielent zu Westhoffen stein als gross als ein fust. Der hagel thett grossen schaden an reben dann er floesset vil stoeckh mit den wurzeln und grunde hienweg und lugent die stein an ettlichen enden viertzehen gantzer tag ehe sie verschmoltzent.* Meyer, p. 123.

96 *Anno. M.D. vi. Erschin ettlich nacht ein Comet keret den schwantz gegen Hispaniam. Diss jar wüchsen alle frucht überflissig, Aber von den Rauppen abgestretzt. Zwey jar darnach waren grosse erdbiden erhört in Teütsch und Welsch Landen.* Franck, Fol. CCXIX^r; Tschamser, I, pp. 710-1.

97 *(Hagel gefallen.) - Anno 1507, montag vor Bartholomae, seind umb 4 uhr hagelstein gefallen wie ein faust und ganssey, lagen vier tag ohne schmelzen, schwemmete die reben mit wurzeln hinweg.* Specklin, p. 480, Op. Cit. 2197 (Exc. Sp)

winds so powerful that trees were uprooted and thrown, houses scoured of roof tiles, and buildings were shaken. Hail followed the wind, damaging fruit and wine in the Breisgau and the lands of Württemberg.⁹⁸ Heat lowered the water table and prices rose for bread and vegetables.⁹⁹

1508 brought cooler temperatures and enough rain to restore the water table, but 'enough' rain turned into continual rain, which weakened an already-enfeebled swine population and disease depleted the pigs of the region.¹⁰⁰ The weather of 1509 could be characterized as extreme, with birds dropping from the skies during a winter cold wave followed by a summer drought which diminished water levels so much that some water mills were unable to function.¹⁰¹ The wine harvest was half of the anticipated volume.¹⁰² Floods during 1510 killed 400 head of cattle in the Ried (the area between the Ill and the Rhine from Strasbourg to Colmar), lifted bridges, and uprooted trees.¹⁰³ On the Monday before Jubilate, the third Sunday after Easter, a rogation was organized from Strasbourg's Cathedral and concluded with a pilgrimage.¹⁰⁴ As the date of the flood is unknown, it is impossible to determine whether the ecclesiastical activity was organized in response to it, another event, or spontaneously.

The winter of 1511 was severely cold, damaging the vines and ruining that year's grape harvest,¹⁰⁵ while heavy rains once more caused the Rhine, Ill, Thur, and Large Rivers to

98 *Den 29. Junij, an S. Peter und Paulstag, mitten in der Nacht, hat ein gähling entstandener Sturmwind ein so entseßliches Ungewitter erweckhet, daß die Wind die Bäum aus der Wurßel heraus gerissen und weit von dem Orth, da sie gestanden, hinweggeworffen. Die Tächer auf den Häusser hat er aufgelüpft und die Ziegel alle abgeworffen, die Häußer und Scheuren erschüttert, als wanns ein Erbbidem wäre, und ein unbeschreiblichen Schaden sowol den wilden, als zahmen Bäumen zugefügt. Darauf erfolgt ein großes Hagelwetter, welches im Breyßgaw, Wirtenberger Land etc. an Frucht und Wein großen Schaden gethan. Gott behüt uns vor weiterm Unglück!* Tschamser, I, p. 712.

99 Dacheux, *Fragments* IV, p. 69, no. 3962.

100 Mossmann, p. 102.

101 Tschamser, I, p. 717; Dacheux, *Fragments* IV, p. 70.

102 *In dem iahr war im Elsass ein halber herbst, aber in Brissgau war viel wein gewachsen, dass wer ein fass brachte, dem gab man ein ohmen wein von der trothen umb acht strassburger pfenning.* Stauffenberger, p. 311.

103 Tschamser, I, p. 721; Mossmann, pp. 103-4.

104 *Item uff montag vor Jubilate thaete man das creutz und kist uss dem Münster und was die roemerfart gar uss.* Stauffenberger, p. 313.

105 Dacheux, *Fragments* IV, p. 61; Mossmann, p. 104.

overflow their banks.¹⁰⁶ There was property damage. Weather conditions in Alsace during 1512 were moderate, allowing for a successful harvest without incident, and the same in 1513. Winter in 1514 was again very cold, freezing the Rhine so thoroughly that, at Basel, tables were set up on the frozen river, a meal was served and it was followed by dancing on the ice. Cold weather persisted into the spring, and the verdure only emerged after the first week of May, but the wine harvest was abundant, indicating that a necessary level of heat was eventually achieved for the grapes to mature.¹⁰⁷

Winter 1515 was cold as well, although there was no mention of dancing; New Year's Day saw a heavy snowfall in Strasbourg, with a stroke of lightning which hit the cathedral and shook the whole city.¹⁰⁸ Conditions did not improve over the summer: in Strasbourg and in Thann, chroniclers relate that there was rain every single day from Saint John's Day (24 June/4 July) to Saint Bartholomew's Day (24 August/3 September). Flooding and famine ensued.¹⁰⁹ The next year, 1516, the reverse took place: following a dry spring, from Saint John's Day until Michaelmas (29 September/9 October), not a single drop of rain fell.¹¹⁰ Strasbourg took advantage of the drought to enlarge the defensive trench from the

106 1511. *Ueberschwemmung des Rheins. Kehl. Do man zalt 1511 jor, uff suntag vor unsers herren fronlichams dag (15/25 June), do wart der Rin also vast gross, und am andern sundag noch unsers herren fronlichams dag (22 June/2 July) do wart der Rin also gross, das er alle die werben brach im riet ob Keln, und wert me dan 9 wochen, das der Rin grossen schaden det, und in den dörfern das wasser in die hüser lief, die am Rin geleben worent, und vil matten ertrenckt, das das vihe grossen mangel hett an weyd.* Mone, 1, p. 258; Tschamser, I, p. 725.

107 Tschamser, I, pp. 731-2.

108 (*Ein Wetter am Neujahrstag.*) *Anno 1515 auff den newen iardag, schniet es sehr; in dem kompt gelingen ein blix und ein dunder-streich in's münster, das die gantze statt erzittert; hört hirmitt auff.* Specklin, p. 486, Op. Cit. 2208 (Pp. Sch).

109 1515. *Aber ein gross wasser. Kehl. Do man zalt 1515 jor, uff S. Arbogasts dat (21/31 July), do wart der Rin als gross, das er alle die werben gerbrach ob Rein umb Hundsfelt, und werdte 10 wochen und gieng in der elfenten wochen enweg.* Mone, p. 258; 1515. *Nasser summer. In disem jar war so ein natzer summer und gross wasser, das es von Johanni in der mess regnet biss auf sant Bartholomeus tag (24 August/3 Sept), das nie zwen oder drei tag schön an einander war, also das wein und korn auffschlug ein mass wein umb 3 D, ein viertel weissen 8 oder 9 ß, ein becher ancken 27 D; also theür war es.* Mone, 2, p. 141; Stedel, p. 113; Specklin, p. 489, Op. Cit. 2217.

110 1516. *Dürrer summer. In disem jar ein dürrer summe, das es lang vor sant Johannis nit regnet, biss auf sant Michels tag, darumb die summerfrucht wardt, als gersten, habern, auch kraut und ruben; die bracht man gen Strassburg von Hochfelden und galt win well ruben 3 D, dan das feld so dirr was, das man nit zu acker faren kondt noch sayen. Darum schlug die frucht auff, das 1 vtl weissen 11 D, das korn 9 ß galt. Aber es kam ein guter säyet und wuchs dasselbig jar gutter wein, aber wenig. Der ancken und fäss war fast theür, dann es kein ömat wuchs.* Mone, 2, p. 141.

Fisherman's gate to Krutenau.¹¹¹ Regionally, the Dominican chronicler at Thann wrote wrote that there was such a severe drought that the root vegetables, green vegetables, hay, and grain failed. Unsurprisingly, famine followed.¹¹² A document from Haguenau simply mentions that the summer drought ruined vegetables and plants.¹¹³

On 17 April 1517 (27 April), temperatures plummeted below zero throughout Alsace, unfortunately during a spring drought where, from Carnival¹¹⁴ to May, it only rained twice.¹¹⁵ Grape vines on both the hills and the river plane were severely damaged,¹¹⁶ as was the spring grain, at a vulnerable point in its growth. A rogation was organized in Strasbourg,¹¹⁷ but the plants did not recover and although grain was sought as far afield as the Tyrol and Austria,¹¹⁸ famine visited the region. Hungry people came to Strasbourg, whose coffers were generous, but plague broke out in the same year, and the combination led to over four thousand deaths in the city.¹¹⁹ Mortality figures for the rest of Alsace are not available. According to an anonymous chronicler, prices in the region were very high and there was great scarcity from Pentecost (31 May/10 June) until Saint Martin's Day (11/21 November).¹²⁰

The three year sequence of destructive extreme weather events ended with 1517, as 1518

111 Jean-Frédéric Hermann, *Notices historiques, statistiques et littéraires sur la ville de Strasbourg* (Strasbourg: F.G. Levrault, 1817), p. 250.

112 *Den 18. April sahe man aller Orthen ein großen, fürchtlichen Cometsternen etliche Tag lang an dem himmel stehen. Darauf erfolgte eine große Trückyne, also, daß es kein Ruben, kein Kraut, kein Heu noch Omath geben. So war auch ein große Theurung...* Tschamser, I, p. 738.

113 Bibliotheque Municipale de Haguenau, MS 5.2, p. 202.

114 *Fastnacht*, a period of carnival-type behaviour celebrated in Alsace from the Thursday before Ash Wednesday, occurred in 1517 from Thursday, 19 February (1 March), until Tuesday, 24 February (6 March).

115 *1517. Wein erfroren. Auf den 17. tag Aprillen erfroren die reben in dem Elsass und schlug wein und korn auf, dass man ein fuder wein umb 26 auch 30 gl. Gab, ein mass umb 7 D, ein viertel waissen 19. und 18 ß., das korn 17. und 18 ß, dann es auch gantz dürr wetter was von fassnacht biss in den Meyen, das nit über 2 mai. regnet.* Mone, 2, p. 141; Stedel, p. 113.

116 Bibliotheque Municipale de Haguenau, MS 5.2, p. 202.

117 (1517) *Ein creutzgang. (Franz von Sickingen.) Am mitwoch nach sonntag Cantate (13. Mai) da thet man ein grossen creutzgang zu Strassburg von wegen der theurung und sterbet, dann es fahr starb, auch von weben der krieg und wilden hendel mit einem edelman, genant der Frantziscus von Sickingen.* Mone, 2, p. 141.

118 Tschamser, II, p. 4.

119 Dacheux, *Fragments* IV, p. 71, No. 3978. These deaths represent approx. 20% of the city's population, estimated to be just over 20,000 people, although that figure does not include refugees.

120 Dacheux, *Fragments*, III, p. 202, No. 3237^d.

saw a successful autumn harvest of both grain and grape in Alsace. 1519 proved its equal, despite a severe thunderstorm near Thann at midnight on Saints Peter and Paul's Day (29 June/9 July).¹²¹ However, 1520 - cold and wet - was a poor year for the grape vines with sub-zero temperatures in the spring and the autumn.¹²² At Advent, Strasbourg and several places surrounding the city flooded for eight days.¹²³

1521 and 1522 reversed this, with hotter temperatures leading to a good vintage in 1521 and a renowned vintage from 1522.¹²⁴ The propitious weather continued into 1523, when the chronicler of the convent at Thann noted that, on the whole, it was a fruitful year in wine, cereal, fruit, and hay, as well as vegetables.¹²⁵ 1524, however, featured frosts until Pentecost (15/25 May) and heavy rain through the spring which continued until mid-summer. The chronicler of the convent in Thann reports that around Easter (27 March/6 April) there were heavy rains in Alsace, the Sundgau, the Breisgau, and Wurtemberg which led to widespread flooding and heavy damages. After the rain followed 'great violent gales' of wind.¹²⁶ The harvests of the year were poor, stimulating high prices and famine in the region.¹²⁷

Although flooding occurred at the beginning of the Lenten fast,¹²⁸ 1525 was a year with weather sufficiently balanced that an adequate harvest resulted. According to a chronicler at the Thann convent, the summer was very hot and dry, with varying (although sufficient) results: garden vegetables failed, oats and barley were poor, but domestic fruit, wild fruit,

121 Tschamser, II, p. 10.

122 Muller, p. 57n1.

123 *Anno MDXX wurden die wasser uff den advent also gross das sie an viel ortten umb die statt uber die ouwen lieffent, und man in etlichen gassen inn der statt mit schiffen fahren muste. Das wehrte wol acht tag biss die wasser widerumb fielent.* Meyer, p. 123.

124 Muller, pp. 58-9.

125 Tschamser, II, p. 27.

126 *Umb Osteren waren überall, im Elsaß, Suntgaw, Breysgaw und Würtembergerland, nix alls grose Güssen und Wasserschwall, die das gantze Land, Feldt und Wiesen überschwemmtten und großen Schaden zufügten, darauf kamen große, ungestüme Sturmwinde.* Tschamser, II, p. 28.

127 Muller, p. 62n1.

128 (*Grosses Wasser.*) - *Anno 1525, anfangs der fasten, kam ein grosses wasser, dieweil man even den Rietburger graben gemacht hatte, hatt solches wasser besser seinen fluss gehabt, wiewohl es groesser wie zuvor, hat doch weniger schaden gathen.* Specklin, p. 511, Op. Cit. 2273 (Pp. P).

and grapes for wine flourished. He makes particular note that the weather was so calm that the weather bells only rang twice to warn of storms.¹²⁹

Following an incident on 22 February 1526 (*4 March*) of sudden high waters in the Vosges and Black Forest, which flowed down to the Rhine plain, flooded Strasbourg and provoked fears of a second Flood, chroniclers agreed that March 1526 was a month of heavy rainfall.¹³⁰ April turned very dry and the grape leaves came out early and abundantly; however, the dry heat arrived too quickly to perform the necessary tasks of opening up the soil around the grapevines.¹³¹ Despite this, harvests were good, with wine and grain so abundant that they were available for cheaply; even bringing in the hay was supported with good weather.¹³²

Both Thann and Guebwiller also enjoyed a good harvest in 1527 and, although an early frost on Saint Luke's Day (*18/28 October*) touched the grapes, there was an abundance of wine. In 1528, despite a rainstorm on 29 June (*9 July G*) and a hailstorm on 19 July (*29 July*) which caused damage to the nearby crops, the harvest was again abundant and of good quality.¹³³

The four years of generally favourable weather conditions, however, ended on 13 June 1529 (*23 June*), when four days of rain led to severe flooding across the Rhine plain.¹³⁴

129 *Dieses Jahr war gar ein haisser Somer und gar dürr, also daß Gewächs in den Gärten vor großer Hitz verdurbe und verbrannte, aber Korn hat es gar vil geben; der Haber und die Gersten ist nicht gerathen wegen gar zu großer Trückhne, zam und wildes Obs hat es gar vil geben, desgleichen auch Wein, also daß es ein tugendlicher, reicher Herbst war; das Wetter war durch den gsntzen Sommer so gut und still, daß man nur zweymahl hat dörrffen über Wetter leuten und nicht mehr; ohngeacht der grosen Hitz und Dürre, so hat es doch insgemein Frucht genug gegeben...* Tschamser, II, p. 41.

130 *Anno 1526, groß geawesser in der stadt, beschreibts umstaendlich.* Gottesheim, p. 271; Tschamser, II, p. 44; *Bibliothèque Municipale de Haguenau*, MS 5.2, p. 213.

131 Tschamser, II, p. 44; Mossmann, pp. 145-6.

132 *Wein undt Korn war, Gott lob, wohlfeil; es war ein guete Erndt, Frucht genueg, undt war gar guet Wetter, Gott seye es gelopt; das Wetter war so kestlich für das Heüw, das was man heüt meyet, morgens war es dürr; oder was man in der früe am Morgens meyet, das khundte man am Abendt heimbstfiehren; des gleichen ware es auch mit dem Aemet, so in villen Jahren nicht ist gesechen worden. In summa bis alhero ware es ein quetes Jahr.* Mossmann, p. 146.

133 Tschamser, II, pp. 50-1; Mossmann, p. 169.

134 *1529. Gross wasser. Den 13 May kam ein gross wasser in alle land und thet grossen schaden, und ein kalter nasser summer, das der wein nit zeitig wardt und alle ding theür war, das der firm (sirn?) wein ein mass 7 D und der neüw 5 D galt und saur wein, das korn 16 ß., der waissen 18 ß und 19 ß.* Mone, 2, p. 142; Büheler, p. 79, no. 246; Tschamser, II, pp. 56-7.

Refugees came streaming into Strasbourg, where the able-bodied among them were put to work on the city's fortifications.¹³⁵ Along with water levels climbing to ten feet above usual in some places, landslides occurred at Rangon and Enchenberg in Lower Alsace, Guebwiller, Sultz, and Uffholz in Upper Alsace (the last also losing its bridge¹³⁶) and Stauffen in the Breisgau.¹³⁷ A Catholic chronicler at Thann commented that God had punished Basel, presumably for the city's recent acceptance of Protestantism, by making the waters so high that goldsmiths and other artisans were flooded. More than a thousand sheep, cows, and pigs perished at Meyenheim and Merxheim (between Mulhouse and Colmar), and four people drowned at Bitschwiller, near Thann. The beasts of Colmar could not be brought to pasture for two weeks.¹³⁸ The rest of the summer was cold and wet; harvests were poor, leading to dearth.¹³⁹

The winter following this cold summer, however, was so temperate that work could be done in one's shirtsleeves; there was no snow or ice during January or February 1530, and the trees began to bloom. It was so warm, day and night, that it was reported to be more like summer than winter.¹⁴⁰ However, on 4/14 April, the seasons caught up with a vengeance and snow fell, freezing the grapevines. Although harvests in the Upper Rhine were adequate, crop volumes were unable to provide better than conditions of scarcity in

135 (*Grosse Theurung.*) - *Diss iahr (1529) hatte man theurung, krieg und pest, weit und breit.... Eodem, umb Johanni Baptistae, in der theurung gaben die herren den burgern meel genug, den sester zu 14 pfennigen, umb Marini zu 18 pfennigen, zuletzt zu 2 schilling, das viertel zu 3 gudeln. Da mussten bey 1400 arme den wahl bei Clauss in undis bawen, denen gab man alle tag zwey suppen und fleisch und brot genug, und warme stuben zum Mühlstein, auch kleyder und schuh, durch den gatznen winter, alles aus den clostergütern.* Specklin, p. 524, Op. Cit. 2306 (Exc. Sp); see also Jasper Schenk, "'Human Security' in the Renaissance? 'Securitas', Infrastructure, Collective Goods and Natural Hazards in Tuscany and the Upper Rhine Valley / Human Security in der Renaissance? Securitas, Infrastruktur, Gemeinschaftsgüter und Naturgefahren in der Toskana und im Oberrheinthal', *Historical Social Research / Historische Sozialforschung*, Vol. 35, No. 4 (134), The Production of Human Security in Premodern and Contemporary History / Die Produktion von Human Security in Vormoderne und Zeitgeschichte (2010), p. 223.

136 Mossmann, p. 176.

137 Tschamser, II, p. 56.

138 Ibid.

139 Thomas A. Brady, Jr., *Protestant Politics: Jacob Sturm (1489-1553) and the German Reformation* (New Jersey: Humanities Press International, 1995), p. 80.

140 '... es war Tag undt Nacht so warm, als were es im Summer undt nicht Winter'. Mossmann, p. 183.

Alsace after harvest failure in Switzerland led the Swiss to buy up grain supplies and the same in Lorraine brought Lorrainiens to the Upper Rhine Valley as refugees.¹⁴¹

The same pattern repeated the following year: an extremely warm winter followed by freezing temperatures and snow from 9 /19 April to 14/24 April 1531. After a threatened start, crops endured a hot and dry summer where regional waterways dwindled and some dried entirely. The evening of 4/14 September saw a severe hailstorm break windows and mangle vines, trees, and gardens near Guebwiller.¹⁴² This difficult summer bookended by destructive extreme weather events created famine in Alsace in 1531,¹⁴³ and the hospices of Strasbourg were crowded.¹⁴⁴ Strasbourgeois Alexander Berner visited neighbouring cities to compare the capacities of their welfare systems under duress. He went to Nuremberg, Augsburg, Memmingen, Ulm, Isny, Lindau, St. Gall, Constance, Basel, Zurich, Baden, and throughout Württemberg,¹⁴⁵ implying that demand for charitable support was widespread across southwestern Germany and northern Switzerland - and perhaps weather conditions as well.

Winter of 1532 was also abnormal, although in a different manner: snow fell and lay deeply on the ground until 23 February (*4 March*), when warmer temperatures brought about a thaw. Trees and vines greened; however, on 15/25 April a cold snap arrived and on 17/27 April, a hard frost and snow with a stiff wind, followed by a cold, clear day. The plants all froze.¹⁴⁶ Despite this, however, harvests were good, with enough grapes, apples, and pears, and overflowing grain in all places.¹⁴⁷

141 Tschamser, II, pp. 62-3; Bibliotheque Municipale de Haguenau, MS 5.2, p. 216.

142 Mossmann, pp. 186-7.

143 Bibliotheque Municipale de Haguenau, MS 5.2, p. 216.

144 *Anno 1531, als die theurung noch fort dauerte von 1529, lagen alle spital und kirchen voll armer leut die man erhielt.* Specklin, p. 529, Op. Cit. 2330 (Pp. Rh). Piton mentions that according to Specklin's figures, 23,545 people received aid from the Ellendenherberg. Specklin, p. 529, Op. Cit. 2332 (Pp. P)

145 Philip Kintner, 'Welfare, Reformation, and Dearth at Memmingen', in *The Reformation of Charity: The Secular and the Religious in Early Modern Poor Relief*, ed. Thomas Max Safley, Studies in Central European Histories Series, XXX (Leiden: Brill, 2003), p. 74.

146 Tschamser, II, p. 68; Mossmann, pp. 193-4.

147 Tschamser, II, p. 70; Mossmann, p. 194.

1533, 1534, and 1535 saw several seasons with weather more in alignment with general expectations for a northern temperate zone: cold winters followed by hot and dry summers. Despite that, however, the conditions for abundant harvests were not met. On the Thursday before Shrove Tuesday in 1533, heavy winds in the night caused property damage and uprooted trees.¹⁴⁸ The harvest of 1533 was small, although adequate; those of 1534 and 1535, however, were poor. An unseasonable frost on 23 April/3 May 1534 froze the flowering grapevines, while the extreme summer heat created conditions that led to several wooden houses catching fire near Thann,¹⁴⁹ and in Haguenau, dried the wells and fountains.¹⁵⁰ The year finished with extremely cold temperatures,¹⁵¹ which continued into 1535. Once again, an unseasonable frost on 20/30 March followed by two weeks of low temperatures damaged the flowering trees, including those carrying apples, almonds, and other nuts.¹⁵² A cold snap in mid-June inhibited growth of the grapes on the Vosges hillsides, while excessive rain after Saint Lawrence's Day (10/20 August), with only ten days of clear skies recorded from that date to Saint Martin's Day (11/21 November), rotted the crops on the Alsatian plain.¹⁵³ Famine followed.

The weather of 1536 followed the general pattern of cold winters and hot summers; deep cold with snow covered the region from Saint Andrew's Day (30 November/10 December) to Saint Matthias' Day (24 Feb/5 March), leading to a shortage of firewood.¹⁵⁴ After a violent rainfall on 15/25 June, which forced a postponement of the procession planned from the Guebwiller church that day, the summer turned hot and dry. Water levels were so

148 *Anno 1533. - Jovis ante Est mihi, 20. Februarii, tempore noctis, ist ein ungestümer wind in der stadt Straßburg entstanden, die zeitglock und das thürmlin darinnen sie gehangen, umbgeworffen. Gottesheim, p. 276; (Ein Sturmwind.). Donderstag vor fassnacht, in der nacht, kam ein solcher grosser windt dass er das thürnle darin die schlagglock hinge, herab warff und vor der grossen münsterthür einen grossen stein, mehr dan ellentief in's pflaster warff. Warff auch den steinern gang gen dem chor wol halber herab ins bleyen dag, datt am münster mehr dan vir 3000 gulden schaden, warff vil hüsser, scheuern, auch vil 1000 baum in waeldern um.* Specklin, p. 531, Op. Cit. 2341 (Pp. Sch).

149 Tsamscher, II, p. 75.

150 Bibliotheque Municipale de Haguenau, MS 5.2, p. 218.

151 Tschamser, II, p. 77.

152 Tschamser, II, p. 79.

153 Mossmann, p. 202.

154 Tschamser, II, p. 82.

low in the rivers that water mills were unable to operate; being unable to drink, beasts suffered and 'men wailed'.¹⁵⁵ Despite this, the year's harvest of grain and grape was so good that prices were low from Basel to Haguenau.¹⁵⁶ A cold winter in 1537 led to a wet spring and on 23 April (3 May) a storm hit Strasbourg. Lightning caused a fire which destroyed the *Grüne Warth*, a watchtower on the city's southern walls.¹⁵⁷ Despite an inauspicious beginning to the growing season, a hot summer achieved abundant harvests for 1537.¹⁵⁸

After seven years of cold winters, 1538 once again saw a warmer winter in Alsace with a short cold spell in mid-April which froze the vines and threatened crops.¹⁵⁹ The summer proved to be a hot one, with many thunderstorms; destruction from repeated incidents of hail and flooding inspired the Dominican chronicler at Guebwiller to write that it was a frightening and dangerous year.¹⁶⁰ The harvest was adequate, although prices were high.¹⁶¹

1539 was the first of two consecutive years of extraordinarily good grape harvests in Alsace. The year began with colder temperatures, with streams frozen over in early March. In May, a storm brought floods to Offenbourg in Baden east of Strasbourg.¹⁶² June, July, and August had good weather, the hay was brought in easily, and reports from the length of the

155 Mossmann, p. 214.

156 Friedrich Weissbass, *Weingewerbe und Weinleutenzunft im alten Basel* (Bâle, 1958), pp. 291-5, and Bibliothèque Municipale de Haguenau, MS 5.2, p. 220.

157 (*Schweres Wetter.*) - Anno 1537, 23. aprilis, schlug das wetter in die Grüne Warth bey der papiermühlen und brante sie gar abl. Specklin, p. 532, Op. Cit. 2347 (Exc. Sp).

158 Weissbass, p. 291; Tschamser, II, p. 86; Mossmann, pp. 215-6.

159 1538. *Wein erfroren.* (Pfalzgrafen.) Den 15 tag Aprilis erfroren die reben im Elsas und allen landen am Reynstrom, ohne im Rinckaw. Zu Strassburg galt das fuder wein 36 fl. Und auch 40 gl. Und weniger, die mass 7 und 6 D. Item folgenden herbst galt ein fuder vier guldin. Mone, 2, p. 1538; Tschamser, II, p. 89.

160 '... es war ein forchtsames undt gefährliches Jahr.' Mossmann, p. 219.

161 Mossmann, p. 218-9.

162 1539. *Comet.* (Offenbourg. Herbst.) Im Maio ist ein comet am himel gesehen worden. Es waren auch vil grosser wetter und wasser, so vil schaden gethan. So schlug das wetter auch in den spittal. Uff sambstag nach Cantate (10/20 May) gerschlug dass wetter alle die frucht umb Offenbourg ein halbe meyl, wie auch zu Erstein und Korthusen in boden. Eodem anno ist ein so grosser herbst gewesen, das man nicht fass bekomen können; und hat man vil hülsene kasten gemacht, darin man wein gegasset hatt. Auch allweg eim ein fass gefült gegen eim lären, so er weg geben wöllen. Und ist der omen umb 1 batzen verkaufft worden zu Westhosen und dieselb gelegenheit.

Upper Rhine Valley - Hagenau,¹⁶³ Strasbourg¹⁶⁴, Guebwiller,¹⁶⁵ Thann,¹⁶⁶ Mulhouse,¹⁶⁷ and Basel¹⁶⁸ - praised the quality and quantity of the wine produced that year. Prices for all produce were low, indicating abundant harvests throughout the agricultural range.¹⁶⁹

The wine of 1540 was praised as equally exceptional, but a very different year of weather produced it.¹⁷⁰ hotter than normal temperatures began in February, and while rain fell for a few days in March, there was no precipitation in April or May. Some rain fell in the second half of June, but after that, summer and early autumn temperatures rose so high that women were cooking eggs on the cobblestones of Strasbourg,¹⁷¹ the Rhine diminished to such low levels that it could be forded on horseback, forest fires were a hazard, and both humans and animals were dying of thirst.¹⁷² The drought was so severe that water was as expensive as wine in several places, according to the chronicler at Guebwiller.¹⁷³ Fruit withered on the branch, and grapes desiccated on the vine until two days of solid rain at Michaelmas (29 September / 9 October) refreshed the region and allowed for the production of an unexpectedly successful Alsatian wine harvest. The cost of other produce, however, was high, indicating poor harvests of fruit, vegetables, and grain.¹⁷⁴

163 Bibliotheque Municipale de Hagenau, MS 5.2, p. 222.

164 F. Ritter, 'Incunables du grand séminaire de Strasbourg', in *Archives de l'Église d'Alsace*, 1953-1954, p. 112, cited in Muller, p. 89; Meyer, pp. 123-4; Specklin, p. 533, no. 2351; Trausch, p. 64.

165 Mossman, pp. 220-3.

166 Tschamser, II, pp. 92-3.

167 E. Meininger, *Le Vieux Mulhouse*, vol. II, (Bader, 1897), p. 159.

168 Weissbass, pp. 292-3.

169 Mossmann, p. 221.

170 *Anno 1540 der heys sommer und guter wein*. Meyer, p. 124; *1540. Heisser summer. War so ein heisser summer, das ein einwohner der statt Schlettstat den 14 July 4 omen weins eingelesen*. Mone, 2, p. 143.

171 Büheler, p. 84, no. 279.

172 (*Heisser Sommer. - Denkmäler im Rhein gefunden.*) - *Am fastnacht hub es ahn und wardt warm und also fort an, also dass an vil enden in aprile die reben blüeten; daruff volgte ein solcher heysser drockener somer dan kein menschen nit gedenckt, vil brunen versigen, alle gruben, und nassenfluss, also man in der Brüsch allenthalben zimert und andere werck verricht; der Rhein wart so klein dass man ahn etlichen enden mit pferden kunte durchkomen; under Bingen entplostete sich ein felssen im Rhein, daruff sahe man das alt frankisch wappen, mit den 3 krotten, dargegen das mit den 3 gilgen; under Mentz fande man im Rhein 2 grosse marmolstein seullen, 18 schuh ein lang, die kauffte her-nach herrn Florentz Ingolt und liess sie gen Strassburg füren, steht noch eine in seinem hauss im sall in der Oberstrassen. Ist aber ein lang stück davon gehauen worden. Man meinte Carlo Meyno hab sie gen Achen füren wollen und sey das schiff do undergangen. Das erdrich datte sich allent-halben auff, der Schwarzwald brannte, auch im Elsass auff dem gebürg die wald vor grosser hitz, vil menschen und vich sturben durst*. Specklin, pp. 533-4, Op. Cit. 2353 (W).

173 *An villen Orthen gult ein Mas Wasser so vill als ein Mass Wein*. Mossmann, p. 225.

174 Mossmann, p. 228.

Unstable weather was also characteristic of 1541, when cold temperatures allowed snow to endure until mid-March. Warmer temperatures arrived and lasted for a month, but gave way to very erratic conditions which prevented the grapes and other vegetables from ripening.¹⁷⁵ Cold rains alternated with warm sunshine until mid-September; harvests were poor and Alsatians knew dearth.¹⁷⁶ Over six thousand people died in Strasbourg alone.¹⁷⁷

Conclusion

This chapter provides an overview of general environmental conditions in Alsace during the latter half of the fifteenth century and the beginning of the sixteenth century, with particular attention given to weather conditions from 1473 to 1541. With respect to the weather, a formal weather reconstruction was not possible due to the unavailability of original documents from the period whose authors observed and recorded atmospheric conditions. However, the combination of spring-summer temperatures reconstructed for northern Switzerland and southwestern Germany from winter rye harvest dates and edited editions of relevant texts and records written within a century following the last year of the period of study were sufficient to provide knowledge of regional climate, descriptions of weather during that time and rudimentary information about how those weather events affected Strasbourg and Alsatian society.

Of the sixty-eight years of weather conditions described, weather-related harvest failure was reported fifteen times and poor harvests, twelve times. Along with those twenty-seven unsatisfactory harvests, famine was reported in the region in nine years and dearth another

175 1541. *Der Eingang des neuen Jahrs war zimlich kalt, mit vilem Schnee, bis in Mitten des Mertzens; da erfolgte ein kleine Wärme, welche dauerte bis gegen dem halben Aprilis, da fieng ein Misswetter an, mit ungeschlachtetem Regen Wetter, Reissen und Kälte; bald ward widerum warm, bald widerum kalt, und währte bis Anfangs Brachmonaths; da kunte kein Arth in keinem Gewächs gerathen, und war alles widerwärtige Witterung.* Tschamser, II, p. 99.

176 Tschamser, II, p. 101.

177 *Anno 1541 war ein grosser sterbet in Teutschlandt unnd starben zu Strassburg über sechs tausent personen.* Meyer, p. 124.

nine years. Harvests, though, rely upon a full season of supportive weather condition and may survive a single extreme weather event which nevertheless causes property damage (reported in thirteen years) or the mortality of humans (five years) or domestic animals (eight years). Accepting that these documents are not exhaustive and may be neither full nor accurate, the total number of years without reports of weather-related harvest failure, poor harvest, famine, dearth, property damage, wildfires, floods, or the unseasonable freezing of ground or bodies of water in and around Strasbourg is estimated to be twenty-eight or just over forty-one percent of the period.

According to the model of socioeconomic metabolism, the natural environment (including that part colonized by humanity) is understood as the natural sphere of causation from which spontaneous and autonomous events, processes, and fields exert an effect upon human and social biophysical structures, the aspect of human existence which is an inalienable element of nature. The weather was the most dynamic element of the Alsatian environment during the period under study, and while the biophysical foundations of human society continued to function, weather had a materially destructive effect upon their ability to regularly generate metabolic support from the rest of nature. The next chapters will examine three distinct religious views of the natural world during this period of turbulent weather conditions.

CHAPTER TWO: JOHANN GEILER VON KAYSERSBERG'S REPRESENTATION OF NATURE (CASE STUDY NO. 1)

*Vade ad formicam o piger et considera vias.*¹

Introduction

With this quotation from Scripture as inspiration, Johann Geiler von Kaysersberg entered the stone pulpit in the Strasbourg Cathedral on 11 February 1509 (21 February) and started his annual cycle of forty Lenten sermons plus preface; that year, his theme was the humble ant. A tiny denizen of the natural world, Geiler's understanding of the insect gave impetus to sixteen sermons before he turned to another theme for the remaining twenty-five, that of witches and unholy creatures. The relevance of his sermons as the first case study of this research project comes not from the moral lessons which were his primary purpose in preaching, but from the descriptions, anecdotes, analyses, and other references he provided about the natural world while delivering his message. As introduced below, Geiler's sermons have been questioned for his views of magic, his political goals, and other matters of interest to early modern historians. However, to the best of my knowledge, this is the first time *Die Emeis*, the text featured in this chapter, has been the sole focus of an in-depth scholarly examination, and I am confident it is the first time any of Geiler's works have been questioned for his representation of the natural environment.

Die Emeis (The Ant) is not the only collection of Geiler's sermons to take the natural world for thematic inspiration. Sermons collected under the titles *Das buoch Arbore humana. Von dem menschlichen Baum* (*The Human Tree Book. About the Human Tree*; delivered during Lent for 1495 and 1496, and on into 1497²), *Höllischer Löwe* (*The Infernal Lion*) and

1 Geiler, *Die Emeis*, fol. IV^v. The clause comes from Proverbs 6:6: *vade ad formicam o piger et considera vias*.

2 Voltmer, *Wie der Wächter auf dem Turm: ein Prediger und seine Stadt Johannes Geiler von Kaysersberg (1445-1510) und Strassburg* (Trier: Porta Alba Verlag, 2005), p. 948.

Löwengeschrei (*Lions' Roar*, both delivered in 1507³), or *Das Irrig Schaff* (*The Misguided Sheep*; known to have been delivered in 1501, again in 1505 and 1508, and possibly at other times⁴) all find Geiler preaching from nature's table. That is, in these sermons he took advantage of well-known elements of the environment (trees, lions, sheep) as the basis of his moral instructions. *Die Emeis*, however, was the last of this type of sermon, delivered during his final year of life. It was published in 1516 and again in 1517, making the sermons present to the Strasbourg community as both lived memory and in print the same year as Luther was making his opposition to indulgences known in faraway Wittenberg. The timing of both Geiler's delivery of these sermons and their collection into *Die Emeis* makes them a viable basis of comparison with early Protestant religious understanding of nature in Strasbourg, as the worldview presented by Geiler - and the ritual practices based upon it - would have been available to contemporaries when alternatives arrived with the preaching of Reformers Matthias Zell, Martin Bucer, Wolfgang Capito, and Caspar Hedio and radical theologians like Clemens Zyepler.

The chapter is a lengthy one, as it also builds a portrait of the culture and society of Strasbourg and surrounding Alsace against which later changes and events may be understood. It may be worth repeating here that according to the interactive model of socioeconomic metabolism, human society is inescapably embedded in the natural world, due to the biophysical structures of our existence, but also equally embedded in the autonomous cultural sphere of activity, which interprets social experience and brings coherence and meaning to it. As such, although each case study is built around and emphasizes a single unique religious representation of nature, information about the social structures, events, and behaviour which occurred in response to unfolding religious developments will also be included along with responses to environmental stresses.

3 Ibid., pp. 978 and 982.

4 Ibid., p. 980.

This first case study, then, provides an exploration of a cultural representation of the natural world at a point where Catholicism was still innocent of successful Christian challenges to its interpretative authority and a description of the social *status quo* in Strasbourg and the surrounding region during the early sixteenth century. After a brief biography and outline of scholarship concerning him, included in this introduction, the chapter begins with a report and exploration of Geiler's references to the natural world. However, acknowledging the central premise of the history of ideas – in brief, that ideas do not develop in isolation from the people who create and use them, and that one must study ideas not as abstract propositions but in terms of the culture, lives, and historical contexts that produced them - a comprehensive understanding of the 1509 cultural representation of nature in Strasbourg communicated by the late medieval preacher and its potential influence in society would be incomplete at this stage without addressing several additional issues. The second section of the chapter, then, explores the theological and intellectual frames of reference which informed his compositions and the third section discusses his likely sources.

With the third section, the chapter turns to social history with a description of the demographics and institutions of Strasbourg and Alsace and, hence, the possible range of Geiler's audience members and the potential breadth of influence exerted by his representation of the natural world. The concluding section of the chapter accesses the approaches of cultural history, which examines records and narrative descriptions of the popular customs of a group of people (among other things), with examples of communal behaviour that corroborate the assertion of a widespread cultural acceptance of Geiler's representation of nature and his views of the appropriate human relationship with it.

Born on 16 March 1445 at Schaffhausen, Geiler's adult life was lived in Strasbourg, where

he died almost sixty-five years later on 10 March 1510.⁵ He received an early education in Ammerschweier, Alsace (near Kaysersberg), provided by his uncle or grandfather following the early death of his father. Entering the University of Freiburg's Faculty of Arts at fifteen years of age, in 1460, he received his baccalaureate and then, in 1464, his *magister artium*. From 1465 until 1468, he lectured in the Faculty of Arts, and in 1469, was elected as Dean of the Faculty. He occupied the post only a few months, however, as he left the position at the end of the semester in 1470. Enrolling as a doctoral student at the University of Basel during the summer of 1471, Geiler taught at both the Faculties of Arts and Theology, and was elected Dean in 1474. He was awarded a Doctorate in Theology in 1475. He was also ordained as a secular priest in Basel, serving in that city's Cathedral by 1476, and in this urban centre likely experienced himself as a preacher for the first time. However, he returned to Freiburg in May 1476 to lecture, and occupied the position of Rector of that university the following year, in 1477. There he met Jakob Wimpheling, but the record shows a greater number of acquaintanceships as having developed earlier in Basel, including a lasting friendship with Sebastian Brant. He is known to have been acquainted with Wilhelm Textoris and Johannes Heynlin von Stein, both preachers at Basel's Cathedral, as well as Johannes Reuchlin, Johannes Matthias von Gengenbach, Johannes Ulrich Surgant, and Christoph von Utenheim, later Bishop of Basel.

According to Wimpheling, Geiler own doubts about his ability to issue measured penance in the confession box led to his decision to focus on preaching as his life's vocation. His talents were quickly recognized, and the first city to offer him permanent and well-paid employment was Würzburg. Before Geiler could take up the offer, however, Peter Schott the Elder, sometime *Ammeister* (equivalent to Chief Magistrate) of Strasbourg and leader of the city's armed forces in the war against Burgundian Charles the Bold during the 1470s,

5 The following paragraphs are based on the extensive biography of Geiler found in Voltmer, *Wie der Wächter*, pp. 132-56.

persuaded him to accept the specially-created position of preacher in the Strasbourg Münster. On 1 April 1478, Ruprecht, Bishop of Strasbourg, officially installed Geiler as the designated preacher in the *Liebfrauenmünster zu Straßburg*.

According to Beatus Rhenanus, Geiler's friend and, along with Wimpfeling, biographer, the preacher held to a very regular and disciplined personal schedule: awake at 2:00 am or 3:00 am to compose the sermon he would deliver at 6:00 am; delivering the sermon; upon return from church, he wrote down the sermon he had delivered; at 9:00 am he celebrated Mass, at 10:00 am he recited the *Liturgia Horarum*, at 11:00 am he ate. At noon, he read while walking, at 1:00 pm he slept, and at 3:00 pm he researched the subject of his next sermon. After the evening's recitation of the Breviary, he allowed himself to have a walk or meet with friends.⁶

Geiler's agreement with his employers (the cathedral Chapter) was that he would preach every Sunday and every day during Advent and Lent, as well as a certain number of feasts, and for the processions required by the arrival of Legates and princes and collectively-endured calamities such as wars, dearth and famine, and epidemics. As well as these duties centred on the Cathedral, he was also to preach regularly in various other monasteries and convents in and around the city. He was empowered to announce the change of market days, if at short notice, as well as newly introduced indulgences, and was given four weeks of holiday *per annum*. For his services, Geiler was paid an annual salary of 200 florins,⁷ at a time when the average salary was one florin per week.⁸ He occupied the post until his death.

Regularly enjoying a remarkable circle of friends and associates, which, along with Brant,

6 Schmidt, pp. 371-2.

7 Ibid., p. 343.

8 Philippe Dollinger, *La ville libre de Strasbourg au carrefour des courants de pensée du XVI^e siècle: Humanisme et Réforme à Strasbourg*, Exhibition organized by the Strasbourg Archives, Library, and Museums at the Old Customs House from 5 May to 10 June 1973 (Strasbourg: Ville de Strasbourg, 1973), p. 27.

included Jacob Wimpheling, Peter Schott, Beatus Rhenanus, Gabriel Biel, and Jacob Sturm,⁹ Geiler was exposed to the main stream of contemporary intellectual activity and, particularly, the humanism associated with the northern Renaissance¹⁰ - although he was not himself a humanist.¹¹ Theologically oriented towards the *via Moderna* (see section 3.b, below), he was widely renowned as an unusually influential preacher both in his own day and afterwards.¹²

A prominent Catholic preacher on the eve of the Protestant Reformation, Geiler has been an attractive subject of scholarly inquiry.¹³ As Rita Voltmer pointed out in her 2005 study of Geiler, *Wie der Wächter auf dem Turm: ein Prediger und seine Stadt. Johannes Geiler von Kaysersberg (1445-1510) und Strassburg*, eulogies delivered by close friends Jakob Wimpheling¹⁴ and Beatus Rhenanus have provided most of the information about Geiler's life.¹⁵ Wimpheling focused on Geiler as 'the reform programme personified', while Rhenanus presented him as an ideal humanist.¹⁶ This divergence of interpretation was further complicated by Protestant Daniel Specklin later in the sixteenth century, when,

9 Schmidt, pp. 346, 360, and 372.

10 As well as the evidence of his friendship with members of the humanist community in Strasbourg, Jacob Wimpheling noted, in the biography he wrote upon Geiler's death, of the welcome Italian humanists such as Pico della Mirandola and Ficino found at the preacher's table. Jacob Wimpheling, *Vita Ioannis Keiserspergii*, in Johann Geiler von Kaysersberg, *Sermones et varii tractatus*, ed. Peter Wickgram (Strasbourg: Johann Grüninger, 1517), fol. CLVI^v.

11 Geiler did not read Greek or Hebrew, showed no indication of the humanist pre-occupation with philology, and, while sharing with humanists an interest in education, preferred that students be trained with materials from the Church Fathers rather than classical poets. Voltmer, *Wie der Wächter*, pp. 54; E. Jane Dempsey Douglass, *Justification in Late Medieval Preaching: a study of John Geiler of Keisersberg* (Leiden: Brill, 1966), pp. 206-7.

12 Having been named Imperial Preacher in 1498, Geiler was summoned to Füssen in order to offer private counsel to Holy Roman Emperor Maximilian I in 1503. Schmidt, pp. 368-9.

13 Significant authors of the 19th C include Léon Dacheux, *Un réformateur Catholique à la Fin du XV^e siècle Jean Geiler de Kaysersberg, prédicateur à la cathedrale de Strasbourg: 1478-1510; étude sur sa vie et son temps* (Paris: Delagrave; Strasbourg: Derivaux, 1876) and Charles Guillaume A. Schmidt, *Histoire Littéraire de l'Alsace*. In the 20th century, the most important work was from E. Jane Dempsey Douglass, *Justification in Late Medieval Preaching: a study of John Geiler of Keisersberg* (Leiden: Brill, 1966), and Francis Rapp, *Réforme et Réformation à Strasbourg: Eglise et Société dans le Diocèse de Strasbourg (1450-1525)* (Paris: Ophrys, 1974). The 21st Century has seen Rita Voltmer release an authoritative survey of Geiler's work, *Wie der Wächter auf dem Turm: ein Prediger und seine Stadt Johannes Geiler von Kaysersberg (1445-1510) und Strassburg* (Trier: Porta Alba Verlag, 2005).

14 Jakob Wimpheling, *In Iohannis Keiserspergii Theologi doctrina vitaque probatissimi primi Argentinensis ecclesiae praedicatoris mortem planctus et lamentation cum aliquali vitae suae description et quorundam epithaphiis* (Jakob Köbel, 1510).

15 Voltmer, *Wie der Wächter*, p. 50.

16 Ibid.

through the falsification of dates, facts, and circumstances, along with the creation of a few false sermons, Specklin's *Straßburger Chronik* re-fashioned Geiler into a proto-Protestant.¹⁷ Since then, most historians have mistakenly accepted Specklin's representation of the preacher as accurate and have strenuously and inconclusively debated evidence from Wimpfeling, Rhenanus, and Specklin in an attempt to determine whether Geiler was a failed Catholic reformer, a northern Humanist, or a Protestant forerunner.

In a movement away from attempting to establish a narrow - and potentially anachronistic - identity for Geiler, mid-twentieth-century historians began an exploration of other aspects of his work, including his relationship with his sources,¹⁸ his view of witchcraft,¹⁹ the 21 Articles he submitted to the Strasbourg Council in 1500,²⁰ and the rhetorical and stylistic aspects of his preaching.²¹ Most recently, Voltmer has successfully widened the academic view of Geiler to include the political nature of his reform agenda and the central importance of his political priorities to his preaching.²² Her research explores in detail the close union of politics with religion adopted by the preacher, detailing the fundamental reforms of social programme involved in Geiler's sincere ambition to 'instruct, correct, and cleanse the community entrusted to him'.²³

The current concern, while taking advantage of previous research on Geiler, is not focused on resolving questions about his role in coming of the Protestant Reformation, nor in

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- 17 Ibid., p. 51. Strasbourg's first municipal architect, Specklin wrote a two-volume chronicle about his city; only fragments survive.
- 18 Gerhard Bauer, 'Johannes Geiler von Kaysersberg (1445-1510) und seine Hexenpredigten in der Ameise', in *Stregoneria e streghe nell'Europa moderna*, ed. by Giovanna Bosco and Patrizia Castelli (Pisa and Rome: Pacini, 1996), pp. 133-67.
- 19 Rita Voltmer, 'Du discours à l'allégorie: Représentations de la superstition, de la magie et de la sorcellerie dans les sermons de Johannes Geiler de Kaysersberg', *Sorcellerie Savante et Mentalités Populaires*, ed. by Antoine Follain and Maryse Simon (Strasbourg: Presses universitaires de Strasbourg, 2013), pp. 46-52.
- 20 Uwe Israel, *Johannes Geiler von Kaysersberg (1445-1510). Der Strassburger Münsterprediger als Rechtsreformer*, *Berliner historische Studien*, 27 (Berlin: Duncker & Humblot, 1997).
- 21 Irmgard Weithase, 'Geiler von Kaisersberg als Kanzelredner', *Sprechkunde und Sprecherziehung*, 4 (1959), pp. 116-33.
- 22 Rita Voltmer, 'Political Preaching and a Design of Urban reform: Johannes Geiler of Kayserberg and Strasbourg', *Franciscan Studies*, 71 (2013), 71-87.
- 23 Voltmer, *Wie der Wächter*, p 735.

expanding knowledge about his political and social influence. While note will be taken of the latter, a different concern is the focus of this investigation and it is one which may be fruitfully pursued alongside other concerns. That is, since Geiler was an influential participant in Strasbourgeois society of the early sixteenth century, his central role in transmitting the religious culture of his period renders these sermons into a rich resource for Catholic views of the natural world – views which, while we cannot be certain were widely shared, were accepted as unimpeachably orthodox in their time.

2.a The Natural Environment in *Die Emeis*²⁴

Given the Catholic worldview of late medieval Alsace, the regular incidence of extreme weather events in the late fifteenth and early sixteenth centuries demands an examination of the words and behaviour of religious leaders for a perspective on the church's response to a turbulent natural environment. Such a perspective could not be an 'official' policy response of the Roman Catholic corporate body to material evidence of climate change, as neither the concept of climate nor the comparison of long-term quantitative measurement were available at that time, and the reach of late medieval Christendom included several different climatic zones. However, the Lenten sermons of respected orthodox leaders such as Johann Geiler provide insight into local or regional attitudes towards nature which were acceptable to both the clerical hierarchy and a wide range of parishioners. This section of the chapter begins by noting the absence in Geiler's sermons of references to weather conditions he experienced or the challenges they posed and briefly explores a sermon exciting particular expectations for such references and its source material. Then the bulk of the section is devoted to reporting the manner in which Geiler represented the natural

24 A small note about the selections to follow: *Die Emeis* includes sermons from both 1507 ('Herr der Kunig, ich diene gern', a religious interpretation of a popular children's game) and 1509 (fifteen sermons as 'Die Emeis', with the fifteenth sermon on the ants expanded into twenty-five more gathered under the title 'Von den Hexen und Unholden'). This research uses material only from 'Die Emeis' and 'Von den Hexen und Unholde', all delivered during Lent 1509.

environment in his Lenten sermons of 1509.

A word about the approach taken here to the subject of witchcraft and magic: for late medieval Alsatians, magic was understood to be a tool, an instrument through the use of which people assumed control over many features of daily life, including the natural world,²⁵ and Geiler's views on the subject have occupied the attentions of several scholars. Early research approached the issue as part of an attempt to lay blame for the belief in sorcery at the feet of Protestantism, or as part of a defence against this accusation.²⁶ More recently, the focus of the research has largely centred around the question of Geiler's personal belief in the material reality of magic, as encapsulated in the issue of flight by witches. Could witches truly take flight? Or was their claim to fly an illusion created by the devil?²⁷ It was considered that resolving the issue would reveal whether Geiler upheld the *Canon Episcopi* from the twelfth century²⁸ or was persuaded by fifteenth-century authors such as Heinrich Kramer or Ulrich Molitor that witchcraft was a clear and present danger. In her 2013 discussion of Geiler's view of magic, Rita Voltmer found that Geiler - along with other theologians of the period - was ambivalent about this matter; contradictorily, he preached both that it was a diabolically-implanted illusion and that it was materially possible, if only feasibly accomplished by the devil.²⁹ Voltmer goes on to situate Geiler firmly within the emerging current of doctrine which condemned witchcraft as sacrilege, along with apostasy, idolatry, superstition, lust, and curses. His preaching on the subject was part of the growing juxtaposition of practices such as those described in the *Malleus Maleficarum* with the behaviour and ideas of his audience, re-interpreting behaviour which had been hitherto innocent (if not entirely reputable) as sinful and criminal.³⁰

25 Voltmer, 'Du discours à l'allégorie', p. 82.

26 Ibid., p. 46.

27 Voltmer, 'Du discours à l'allégorie', pp. 48-52.

28 First appearing in a ninth century collection of canons, *Canon Episcopi* was a clause circulated through the *Decretum Gratiani* (causa 26, quaestio 5, canon 12) which asserted material flight to be impossible and an illusion imposed by the devil; belief in the material reality of flight was declared a heresy.

29 Voltmer, 'Du discours à l'allégorie', pp. 66-7.

30 Ibid., pp. 82-3.

The issue of witchcraft, magic, and the supernatural in *Die Emeis* will be explored in greater detail in the next section, but a caution is advisable with regard to the focus which will be pursued here: while scholars of late medieval witchcraft and magic may examine *Die Emeis* for Geiler's views on the subject, this treatise is interested in his views on the natural world. Since magic was understood as a useful tool to manipulate the natural environment, it is included in this research only for what it reveals about Geiler's view of nature.

Unlike forward-looking Advent, which anticipates the celebration of Christ's birth with the return of the sun after Winter Solstice, Lent asks the Christian to look back in self-assessment and, in commemoration of Christ's sacrifice of himself for the redemption of humanity, offers to the faithful an opportunity for repentance, penitence, charity, and self-abnegation. The dates of Lent are established by the date of Easter, itself a movable feast held on the first Sunday after the full moon following the Vernal Equinox. Lent therefore falls at the tail end of winter in Alsace, usually before spring greens have begun to grow or the winter wheat ripens. During a ritualized period of the year, featuring an emphasis on introspection and a review of past events and behaviour, when bodily survival was reliant upon a successful harvest from the previous summer, a twenty-first-century person expects Geiler to have addressed events from the preceding months during his Lenten sermons - particularly since weather conditions in 1507 and 1508 had made the Alsatian harvest, and, consequently, the prosperity or survival of Alsatian individuals and communities, an uncertain question.

However, there was no mention in these sermons of current weather conditions or weather events of the recent past. The themes which were addressed provided ample opportunity for the subject, such as on the Monday following Reminiscere, the second Sunday of Lent, when Geiler's fourteenth sermon of the cycle was focussed on the ants' ability to foretell

the weather. He considered this ability to be prophecy, which is shown by the ants remaining in their houses when it is about to rain or snow. From this, he instructed his listeners to learn that just as the ants warned them of the coming rain, so there are seven prophets. Three of them are good and four are evil, who will lie to whoever attends them.³¹ Later in the sermon Geiler drew a very brief analogy between the prophetic ant and a Godly preacher, crediting both with prognosticative powers. Other than that, he followed the usual pattern of a thematic sermon interpreted according to the *Quadrige*, and turned from his knowledge of ants' behaviour (the literal sense) to an instructive moral discourse about the trustworthiness of various types of prophets - despite the obvious utility of a weather-forecasting insect for the regular challenges faced by the people listening to him.³² The model for this sermon was Nider's *Formicarius*, where, in comparison to Geiler, the Dominican was cursory in his reference to the literal behaviour of ants. Nider perceived them as prognosticators who could feel beforehand the cold, the rain, and storms. He attributed it directly to divine instinct, which led them to gather in their homes before such calamities.³³ Nider also went on to address a subject entirely unrelated to the weather: the role of faith in prophetic ability. The humble ant did not make another appearance until the onset of his next chapter; Nider's influence upon Geiler's sermons will be examined more thoroughly in the following section. If Geiler did not speak about current or recent weather

31 *Die. Xiiii. Eigenschaft der Emeissen ist (Pronosticatio). Das ist weysagung. Sie erkent ir argewiter, wen es Regnen oder Schneyen sol so wandelen sie nit, so laussen sie in den haussen hinyn gleich als wen die leutz und flohe übel beissen und not thûnte so spricht man es würt bald regnen, auch wen die schwalmen und mücken nider fliegen, Es ist ein zeichen des ungewiters, wan der lufft in der hohe ist dick, so fliegen sie nider uff dem erdtreich, was sol ich hie lernen. Du solt lernen, so die oemeissen dich warnen vor dem regen, und ist also ein Prophet, So lerne das die syben Propheten seind: Drei güt, Und fyer bötz, und lûg ietliches welchem er nach folgett.* Geiler, *Die Emeis*, fol. XXXIV^r.

32 *Ibid.*, fols. XXXIV^v-XXXV^r. It can also be noted that anecdotal evidence continues to support the idea that ants withdraw into their nests before rainfall, although scientific proof is lacking. Steffi Kautz and the AntAskTeam, 'What are These Sticks on Our Patio (Chance and Rois)', *Antblog*, 17 June 2012, <<http://www.antweb.org/antblog/2012/06/what-are-these-sticks-on-our-patio-chance-and-rois.html>> [accessed 5 July 2013].

33 *Capitulum ii formicarum est alia conditio: quod pronosticant et presentunt frigus et pluvias et tempestates aeris. Huius autem signum est: quare ante ad ventum calamitatum talium se ad casas suas recolligunt divino instinctu.* Johannes Nider, *Incipit prologus formicarii* (Köln: 1473), *Libri Secundi, Capitulum Secundum* (p. 87).

events, even in the opportunity provided by the literal sense of interpreting Scripture, in a sermon framed by weather-forecasting ants and despite recent events which clearly did not conform to the hopes or even needs of the community,³⁴ what *did* he have to say about the natural environment?

Most vividly, the natural world is the source domain for the many metaphors Geiler constructs about the human soul and Alsatian society. One such example is found in his second sermon, delivered on Ash Wednesday, when Geiler told his audience that the smallness of the ant corresponds to humility and their black colour to simplicity; he went on to build his sermon around examples of humble and simple Christians beloved by God.³⁵ During the next day's sermon (which we will visit again below), he asserted that an ostrich hen, who lays her eggs in warm sand but does not brood them, was the Alsatian ruling class, who abandoned their eggs (pious subjects) and failed to brood them into honourable and spiritual souls.³⁶

The natural world's function as the source domain for metaphors of this type is found frequently in *Die Emeis*, particularly in the first section, 'Die Emeis' (The Ant). However good-humoured or pointed such metaphors may be, they reveal to only a limited degree the meaning nature held for Geiler, due to the way metaphors are constructed. The source domain (in this case, the ant) exerts a formative influence over the metaphor, as the qualities available for metaphoric construction are limited to the qualities of ants. For example, Geiler would have been unlikely to construct a metaphor involving flight, as ants generally lack that capacity, and there is, indeed, little discussion of human souls soaring or flying to God's side in *Die Emeis*. Metaphorical meaning is found in the associations chosen for the target domain; Geiler's choice of the ant as the source domain for his

34 See Chap. One, notes 75 and 76.

35 Geiler, *Die Emeis*, fols. X^v-XII^v.

36 Ibid., fol. XIII^v.

sermons speaks more about his view of the target domain - whether human soul, body of the Church, or the nature of prophets, among others - than his desire to preach about ants.

A more direct manner of engaging with Geiler's view of nature is available from his sermons, for, while his primary purpose for preaching was the salvation of human souls, one of many avenues towards achieving that goal was through instruction in orthodox cosmology. Scattered throughout the forty-one sermons of 1509 Lent are descriptions, anecdotes, explanations, and comments which assemble to articulate a comprehensive representation of several elements of the natural environment, including animals, plants, general reasons for inclement weather, and suggestions for addressing the latter.

To begin: along with the metaphor of the ostrich egg mentioned above, during his third sermon of the cycle, Geiler preached about the egalitarian nature of an ant colony. Whether personally lacking knowledge about the presence of a queen in every colony or choosing to follow Nider in this, Geiler portrayed ants as having no leader except God Himself. With God's leadership accepted by both solitary creatures, such as lions or bears³⁷ and social creatures, such as ants, swallows, sheep, herring, or bees, Geiler preached about the need and motivation for human beings - included in the category of social creatures - to accept God's leadership. As part of his explanation for the ants' obedience to God, Geiler gave his understanding of God's role in the creation of animals as follows.

The preacher began by reminding his audience that God is the common leader of all creation, and that (other than with respect to the common people), divine rule may be seen everywhere on earth. That is, no worm may wriggle or crawl without God's help and direction, as, when a creature is made, God gives to that creature an impulse of energy, by which energy they must live their lives. To further explain this understanding of the

³⁷ Geiler's assumption that lions are solitary is most likely based on encounters or descriptions of captive animals, although he may be drawing parallels with the Eurasian lynx or Caspian lion, both of which tend towards solitary hunting.

manner in which creatures gained life, Geiler then offered an interesting metaphor, whose source domain was archery. That is, when someone wishes to shoot at a target with a crossbow, he lays an arrow at the breastplate and pulls the string tight; as the string hits the end of the bolt, then the bolt is driven towards its target by the same impulse. In this same way, God bestows life-energy upon a creature when he makes it and by the force of this energy, the creature generates its behaviour. The eagle flies in this way, the hare leaps, and the horse runs. Thus, Geiler asserted, God also governs all the ants. He further clarified that he was not discussing the common governance of all things, but the leading of their souls.³⁸

God's actions were made very clear to listening audiences: God creates things and provides the means for his creations to move about according to the manner in which they were created. This passage is not found in the corresponding chapter of Nider's *Formicarius*, which begins and concludes by lauding the lack of visible leadership in ant communities, but where, for the Dominican monk, the lesson from the ant was confined to the proper management of monasteries and cloisters.³⁹

This fascinating passage can be queried in a number of ways, beginning with an exploration of Geiler's understanding of the process through which God makes animals. First, God creates a thing; secondly, he gives it life. The Vulgate account of humanity's creation, in Genesis 2:7, speaks to God's formation of man using material described with the word *limo*, which can be translated into English as *mud*, *clay*, or even *slime*, while for the same in Greek, is translated as *dust*. Geiler would have been familiar with the Vulgate, but Erasmus had not yet published his Greek New Testament in 1509, and Geiler, as

38 *Wir wissen wol das Got ein gemeiner fürer ist aller geschöfft, und nū on den gemeinen regieren uff erdreich geschehen mage, kein regenwürmlin im ardreich mage sich biegen und kriechen on gottes hilff und steur. Wan got der herr ein ding schöpft so gibt er der selben creaturen ein stoß in krafft, des selben stosses leben sie, unnd thūt was sie sol thūn und ir zūstot zethun. Nym das exempel. Wan einer schiesser wil zu dem zyll, so spannt er das armbrost und let ein pfeyl oder ein boltz uff das armbrost und truckt die senn auß. So schlecht die senn hinden an den boltz, so fert der boltz von dem selben stoß byß an das zyl. Also gibt got einer geschöpft wan er sie macht, und in krafft des selben stosses wirckt sie was sie thūt. Also von den stoß flüget der adler und sprigt der hirtz, und laufft das roß. Also regiert auch Gott alle Emeissen, aber wir reden hie nit von dem gemeinen regietet aller ding, aber von dem fürer irersei. Geiler, *Die Emeis*, fols. VIII^r-v.*

39 Nider, *Formicarius*, Libri Primus, Capitulum Tertium (pp. 32-8).

mentioned earlier, did not learn Greek and so did not browse through the Pentateuch in that language. Geiler's words, consistent with the Vulgate Genesis and following immediately after his reference to wriggling, crawling (cold and slimy) worms, evoke an image of a potter or sculptor crafting animals from a wet, sticky substance and then energizing them to a leaping, running, flying life. Echoing the Biblical sequence of events, the hierarchy of creation is maintained: before God is able to introduce life to His creation, he must create a material receptacle.

The impression of God as a potter or craftsman, however, is quickly superseded by Geiler's surprising portrayal of God as an archer. While Adam is gently brought to life through God's breath, the Creator provides life energy to the eagle, hare, and horse (as well as, presumably, all the other non-human beings) in the manner that an archer sends an arrow to the target. The construction of any metaphor combines individual inspiration with culturally accepted associations and similarities, and the portrayal of God as an archer is uncommon. In Geiler's attempt to communicate the manner in which creatures are given mobility and life, he may have relied upon his auditors' knowledge of the weapon. Strasbourgeois of the early sixteenth century were acquainted with firearms – this generation saw their widespread introduction⁴⁰ and the city owned a canon named *der Strauss* (the Ostrich)⁴¹ - but it was more likely that a regular person would use and/or understand a crossbow rather than a firearm. Artillery was manufactured throughout Alsace, and that of Strasbourg particularly renowned,⁴² but firearms were expensive⁴³ and secrecy surrounded its manufacture. The restricted access to gunpowder limited its customary use to the military and related guilds.⁴⁴

40 Bischoff, p. 324.

41 Fernand Braudel, *Civilization and Capitalism, 15th – 18th Century: The Structures of Everyday Life*, trans. By Siân Reynolds (University of California Press, 1981), p. 387.

42 Bischoff, p. 80.

43 Ibid., p. 325.

44 Jack Kelly, *Gunpowder: Alchemy, Bombards, and Pyrotechnics: The History of the Explosive That Changed the World* (New York: Basic Books, 2009), p. 64.

This metaphorical placement of God in relation to His creatures, as creating them and then sending life energy to them, defines Him as a transcendental divinity, which is to say, outside His creation. God is not present in the animals, whether eagle or ant; instead, He creates them, He vivifies them, and since they accept His leadership, He governs them. Each creature lives according to its design.

Three days later, on *Invocavit*,⁴⁵ Geiler launched into the sixth sermon with his understanding of the source of the wisdom of animals, giving a substantial expansion upon his earlier sermon on the gift of life.⁴⁶ The quality of ants he addressed was their wisdom, which he expanded into four categories: their awareness, wisdom, reason, and astuteness. Ants are untiring, he said, and they have a good recollection of what they are supposed to do; this leads them to shuffling back and forth, from early in the morning until late, and they accomplish their work. Stimulating further exposition through the introduction of a

45 *Invocavit* is the first Sunday after Ash Wednesday, and, as such, the first Sunday of Lent.

46 *Die .VI. Eigenschaft ist (sagacitas) das ist fürsichtigkeit, weisheit vernunft, gescheidikeit. Die Emeissen seind unuerdrossen, und hon ein gütt gedechtniß was sy sollen thûn, am morgen frue uff, und spat so zotren sie noch hinundher, und volbringen ir werck. Du sprichst wie können sie vernünftig sein ich wont es wer nur eyn mensch vernünftig sein dan die thier auch vernünftig. Das es war ist wen wir eigentlich von der vernunft reden wolen, so ist allein der mensch vernünftig. Aber die vernunft würt mit gemeinem namen hie genuümen für ein gescheidikeit, die ir got yn hat geben, das sy das thûn sol (Pro solitudine) die vernunft würt genumen für sorgeltikeit die ein their hatt, unnd in den geschefften der thier, da wirt erkant die weißheit Gott des allmechtig.*

Gotes weißheit würt als wol erkant in ein schnacken als in einen grossen Elephanten. Ir wissen wol, was ein schnack ist, das so klein ist, unnd so vil kleiner füßlin hat. Also in einer Emeissen würt gottes weißheit auch erkant, das gott hat semlichen bescheidikeit (sic) können setzen in ein solichs klein kopflin. Ein Emeiß hat grösser augen weder der koff ist. Der kopff ist so klein das die augen nitt mogen in den kopflin geston darumb so gon zwei gebelin, oder zwei zincklin vom koff fürußhin an denen ston die augen, unnd die natürliche gescheidikeit die sie von got hat ir angeschopfft die uß heit heiß ich ir gedechtniß unnd vernunft.

*Es ist in der Emeissen wie in andern theiren auch ist. Ein schaff das sicht ein esel und sicht das er lang oren hat, und forcht sich nit, und sicht ein wolff, unnd hat nie keinen mer gesehen und flücht den wolff, und nit den esel, wer sagt den lamp, das der wolf, sein feind ist, und nit der esel. Nun ist doch feintschafft unsichbarlich, man kan sie nitt sehen noch horen noch schmecken, sie ist weder sauwer noch süß. Got der her hat der naturen der thieren geben ein fießheit und gescheidikeit, die heiß ich ir vernunft (Illam sagacitatem). Auch alle thier nehen sich zû der vernunft des menschen so vil sie mogen (Attingunt aliqualiter Orizontem rationis hominis, sicut homines angelorum vel intelligentie.) Der geschopfft seind gleich wie ein kethen ist. Ein ring begreift den andernring, der ander, den dritten zc. Durch vfhin. Also alle geschopfft hangen aneinander. Die beum gont zû der vernunft des menschen so vil sie mogend, darnach die thier noch mer, und ein thier mer dan das ander kumpt neher zû der vernunft des menschen reicher an die vernunft des engels, und ein engel des andern. Also das alle geschopfft hangen aneinander, wie die ring an einer ketten. Das sihestu wol das semliche vernunft ist in den thieren. Du sprichst wen du etwas sihest von den thierlin das der vernunft gleich ist, wer lernet sie es. Nun hond sie doch niendert vernunft gott hatt es in sie geschafft. Du sihest ein spinnen, wan sie ein wep machet, so henckt sie an den baum ein faden an, und an ein andern baum auch ein faden, wie kümet sie ab er hinuff, und macht das spinweb eben an dem ort da fliegen sein. Wer sagt der katzen das sie iren iungen vor dem katter sol verbergen? Du sihest wie die schwalmen ire nestlin machen, du sihest mitt dem schaff wie vor gesagt ist, das die thier semliche verbor gne ding kennen die inen schedlich seind, das heiß ich die vernunft, und also sag ich, das die Emeiß witziger ist und bessere gedechtniß hat dan vil andere thier. Was sol ich hie lernen? Geiler, *Die Emeis*, fols. XVIII^v-XIX^r.*

question ascribed to his listeners, he wondered (ostensibly on their behalf) how ants can possess reason, as the imaginary questioner is accustomed to reason only in humans. Is Geiler suggesting, he speculated, that animals also have reason? It is true, he responded to himself, that if we were actually talking about reason, then men alone have reason. But, he went on, he was using the word reason in the sense of its common understanding: astuteness, and the careful attentiveness an animal possesses. He advised his listeners to look for the wisdom of God in the business of the animals, asserting that astuteness was placed into both a tiny gnat and a large elephant. Returning to the ants, Geiler drew attention to their eyestalks and said that within these little spikes God had placed his astuteness, which the preacher called memory and reason.

Geiler went on to extend the example from ants to the other animals such as sheep, whose young is able to show its capacity to distinguish between an ass and a wolf (when it has never before seen one) by fleeing the wolf but not the ass. Since enmity is invisible, and inaccessible to the senses, he asked, who tells the lamb that the wolf is his enemy and not the ass? He found the answer in the knowledge and astuteness given to the nature of the animals by God, which he identified as their reason.

Geiler then described the manner in which the wisdom of animals draws near to the wisdom of men, as much as they can, as do men the wisdom of angels. Creatures, he said, are like a chain, where one ring grips the other ring, the second ring grips the third, and so forth, and where in this way, all creatures are linked together. Even trees go towards the reason of man as much as they are able. Geiler went on to give his proof for this knowledge, which, he claimed, can be seen in the behaviour of creatures: the success of spiders in hanging threads and their placement, the manner in which mother cats hide their kittens from tomcats, or how swallows make their nests. He considered their behaviour to be a result of their God-given reason, and that, in this context, the ant was smarter and had

a better memory than many other animals.

Whereas initially, in the sermon three days beforehand, Geiler had simply presented life-energy as the common gift God directed into each animal, which then behaved according to its design, this passage expanded and complicated the relationship between God and animals by adding the quality of wisdom to the energy of life. Both are placed in the creature, and, in the ant's case, rather delicately at the top of its antennae. Moreover, it is God's wisdom which has been inserted into each creature; that is, the wisdom belongs to God, and is not inherent in the creature nor its design. With it, Geiler shifted authority over the behaviour of animals from each individual creature (acting in accordance with its design) to God, whose wisdom it is which motivates them to do what they must to survive, like running away from wolves. While God remained absolutely transcendent to His creatures, a particular quality of His (wisdom) now dwells in each eagle-, hare-, or horse-shaped material receptacle, along with the energy of movement He provides.

Moreover, Geiler presented the shared quality of God's wisdom as the common element which united God's creation, including trees, animals, human beings, and angels, each one approaching or 'reaching to' its wiser neighbour. What followed was a sketch of the Great Chain of Being, an influential concept much debated in feudal Europe. The organization of all creatures as linked together in a vast hierarchy was initially developed by Plato, Aristotle, and Proclus; the Christianization of the *scala naturae* took place following its translation during the twelfth century, and was substantially expanded by Thomas Aquinas in several of his works. Central to the concept was the view of God as principal cause and measure of all things, and the more an Intelligence (a creature) approaches God (*accedit*), the more he/she/it participates in God's goodness and life. The organizing concept was that God is good in substance and exists through Himself, while creatures are good and exist by degrees of participation in God. That is, creatures were understood to take their place in the

hierarchy of being through proximity, as they approach or recede from Him. Controversy raged over the distance of God from creation, with opponents arguing about how God's nature influences His approachability.⁴⁷ By alluding to the Great Chain of Being, Geiler was attempting to describe the relationship of creatures to one another and to God, not suggesting the physical mobility of trees.

Equally interesting in Geiler's understanding of the creation and behaviour of animals are his reasons for unexpected or unhappy human interactions with the environment, such as wild animal attacks. He offered a nuanced analysis which combines ordinary bestial motives with diabolic and divine will. For *Oculi*, the third Sunday of Lent, his twentieth sermon included an exposition of the seven distinct reasons which might motivate a wolf attack on a human.⁴⁸ The first is when winter is upon the land and other prey cannot be found; the second is when the wolf is *grimme* (wrathful or furious), such as when its young are threatened. The third, fourth, and fifth are due to old age and debility, the easily tempting availability of a human, and from its own foolishness, similar to a dog chasing its own tail. The sixth type of wolf attack is when the devil assumes the form of a wolf; the seventh destructive wolf is God's ordaining, where God chooses to punish some land or village through the wolf. Not every wolf attack is diabolically motivated, nor every dream, as Geiler explained during his fifteenth and sixteenth sermons, when he detailed the reasons for various types of dreams.⁴⁹ While he did not turn his analysis to nor explicitly extend to the atmospheric conditions this mixture of inherent, god-given behaviour with diabolically-created exceptions, it would likely be safe to extrapolate from the above to the weather and assume that, in Geiler's view, not every thunderstorm was caused by the devil.

Nonetheless, magic did have a role to play the creation of storms or hail. However, Geiler's

47 Edward P. Mahoney, 'Lovejoy and the Hierarchy of Being', *Journal of the History of Ideas*, 48 (1987), pp. 211-230.

48 Geiler, *Die Emeis*, fols. XXXXI^v-XXXII^v.

49 *Ibid.*, fols. XXXV^v-XXXVIII^f.

understanding of magic did not feature spells or curses directly cast by witches and wizards in a straightforward manner, where the ability of the practitioner directly caused the desired effect. The ability to break and bend magically the laws of nature created by God would position human spell-casters as equal to God in their authority over the natural world. This idea, which trod upon very dangerous theological terrain, shared obvious similarities with Lucifer's hubris, and Geiler was steadfast in correcting it by repeatedly presenting a complex dynamic where a human makes certain signals or signs to the devil indicating a malicious intention; the devil's own God-given powers allow *him* to either do the work himself or to dispatch a demon to fulfill the human's desire.

For example, during his twenty-third sermon on the Tuesday following Oculi which was focused on an exposition of the ways in which the Devil was able to inflict harm upon humanity, Geiler included the following explanation of how he understood magic to operate with respect to inclement weather. When witches or sorcerers were seen sweetly brushing a manikin or hitting a bundle of straw on their leg, he stated clearly that this was not the principal cause of hail and thunderstorms, but only the prompt which brought about the actual deed. He considered such things nothing more than a signal summoning the devil, who arrives and undertakes to fulfil the desire of the human.⁵⁰

The first known ascription of the use of human-shaped figures, or dolls, for the purpose of malicious magic was in the 1487 *Malleus Maleficarum*,⁵¹ and noting again the spiritual hierarchy, Geiler explicitly diminished the role of both the witch and the straw doll in creating hail and thunderstorms, instead making the role of the former into that of a

50 *Zu dem sechßten das die wirckung der Hexen oder des Zaubrers (Non est principalis causa illius affectus) Ist nit wircklich vrsach des werckes das da geschicht. Du sist das sie einen menschen suw büersten oder ein wüschbletz oder ein strowysch in ein schenckel stossen, und hagel und wetter machen. Da sprich ich, dass das die Hexen oder unholden nit thü. Das selbig ist ein anfencklich wirckliche vrsach des selben das da geschicht. Es ist nit me den ein zeichen, wen der tüfel den das zeichen sicht und die wort hort. So weiß er was sie gern heten, der thüt den das selbig, und der teuffel thüt es und nit sie.* Geiler, *Die Emeis*, fol. XXXXV^r

51 Emily D. Edwards, *Metaphysical Media: The Occult Experience in Popular Culture* (Carbondale: Southern Illinois University Press, 2005), p 94.

summoning agent. It is the devil himself who actively creates the hail and thunderstorms. The preacher repeated his point the next day and emphasized the devil's desire for equality with God as the foundation for this dark parallel sacrament.⁵² This desire was the traditional reason, of course, for Lucifer's rebellion against God and his ejection from Heaven. Geiler, however, was clear in distinguishing between God's sacraments, which were reliable when used as intended, and the devil's version, which were not. A witch throwing water over her head with a broom, then, was not causing rain; she was activating her pact with the devil, whose divinely-ordained power was the true cause of the storm. But the devil was not as powerful as God and so witches could not be assured of success. Strikingly, the devil's unreliability is Geiler's most significant caution against consorting with the devil throughout *Die Emeis*. The human who would initiate diabolic action was described frequently as malicious, corrupt, spiteful, or evil, but no mention was made of eternal damnation or purgatory's purifying fires as a terrifying consequence for summoning the unholy, both of which punishments would be stridently proclaimed in later decades. The devil or demons may arrive and initiate misfortune without human demand (perhaps an aspect of his unreliability), as mentioned in the eighteenth sermon,⁵³ but Geiler presented the summoning of demons and their master as relatively easy, perhaps due to the clouds of swarming clouds of evil spirits at work in the world.⁵⁴

52 *So hat got sein sacrament als den tauff, beicht zc. Uff gesetzt und ein pact mit uns gemacht, wenn wir die brauchen, als wir sie sollen brauchen, so wil er uns nit fellen. Er wil das setzen und thün, das darumb das sacrament ist uff gesetzt. Also hat der tüffel got wollen gleich sein, hat auch sein sacrament wellen uff richten und den hexen semlich zeichen geben die er gedachtt hat. Wan got hat sie nit gemacht, noch kein engel, noch kein mensch hat sie erdacht. Aber der teuffel hat gesagt das sie die brauchen sollen unnd wen sie es thünt, so wil er auch thün. Darumb sie die zeichen brauchen, dem ein aug auff stechen den lam machen, dem das thün, darumb der besen. So die hexen wasser mit über den koff hinderlich auß werffen. Das macht nie den regen. Aber der teuffel der wircket und thüt die ding durch sein angeschoffpte macht, die im got geben hat. Aber das ist underscheid zwischen den sacramenten gottes und des teuffels das, die sacrament gots follent nit (Sunt efficitia) Got wirckt alwegen: die sacrament, aber des teuffels die felen wan der teuffel wirckt nit alwegen. Geiler, *Die Emeis*, fol. XXXXV.*

53 Ibid., fols. XXXIX^v-XXXIX^v. Mispagination on the part of Johannes Grüninger, Pauli's publisher, led to two adjacent folios sharing the same number (XXXIX).

54 *Der spricht das der lufft als fol böser geist ist, als in den summer in der sonnen schein foller stoblin und genisch ist. Johannes Neider spricht, wan du über feld gast, so sihestu ein grossen hufen cleiner mückli under einander stieben. Also stieben die bösen geist auch durcheinander. Ibid., fol. LVF.* The first pronoun refers to Jerome.

As well as swarming around in annoying clouds, Geiler portrayed the demonic world as hierarchically ordered, with evil spirits ranked in terms of power and ability. Some, such as these mentioned during Geiler's twenty-second sermon, are among the weaker ranks. Just like humans, some evil spirits did not receive great power from God at the time of their creation and so are only able to affect small annoyances, like rattling bowls or making trash in a house.⁵⁵ While smaller spirits may rattle the bowls, though, the devil himself is able to unsettle and terrorize an entire village. Geiler shared an anecdote about the calamities of a village in the diocese of Mainz, where the devil made an entire village unsettled by hammering on houses, breaking windows, and bringing about many mishaps and general discord. Narrowing in on an individual mute man (a good soul), the devil burned down his house; when the man moved to another house, the devil burned that one down as well. Since he could no longer find shelter in his village, the mute man was obliged to live in nearby fields. Priests organized a procession, but during it, the devil cast a stone at someone and wounded their head. As a final coup, the devil destroyed the entire village by burning down all the houses.⁵⁶

The level of threat posed to humanity by the unholy varied, then, according to the strength which God had given to any particular angel at the moment of its creation. Geiler did not address the manner in which angels were brought to life in the sermons of *Die Emeis*, nor did he discuss their fall from grace therein. Irrespective of the hierarchy in demonic society, however, there were clear limits to their ability; specifically, the devil and his

55 *Die sybend frag von dem gerümpel in einem hauss, sprich ich das es herkommen mag von fünff oder von sechße ursachen. Zu dem ersten vonn den schlechten bosen geisten, die nit vil gewalt von gott habent empfangen, wan wie die menschen ungleich seind. Also die geiste auch, die selben einfeltigen geist rümpeln also im schüssel korb und machen ein semlich gefert. Ibid., fol. XXXXIV^r.*

56 *Es ist geschehen in Mentzer bistum da macht der teuffel ein gantz dorff unrüwig. Er kloppfet nit hemern an den hüssern er zerwarf inen die fenster vnd volbracht vil vnglücks, unnd seind vil zwitracht. Ye zû dem letsten, da nam er ein man in den dorff für sich und durecht den selben unnd seiet semlich unrüwe das man sprach es wer vom seiner sünden willen, und was ein stumer man. Er verbrant im sein hauss, der güt stum man gieng inn ein ander hauss, das verbrant er auch. Also das dem statumen man in dem dorff niemans mee herbergen wolt, der güt man müst vff den ackeren wonen, die priester satzten creutzgeng vff. In der proceß da warff der teuffel einen mitt einen stein das im das blüt über das angesicht ab ran. Also verderbet der teuffel das dorff alle hüsser verbrunen die da warent. Ibid., fol. XXXXIV^v.*

demons were unable to transcend nature's limits as established by God. This included the transformation of a human into an animal, or one animal into another; since this would not occur within nature, the devil could not bring it about.⁵⁷

Unable to create *ex nihilo*, the devil was rather helplessly left in the position of requiring God's materials to implement diabolical design. Geiler emphasized this point again during his twenty-first and thirty-third sermons. During the former, he said that the devil is able to make the animals which can be made by nature or which are generated by putrefaction. He drew the parallel with mice, snakes, or frogs, which grow in the rubbish people leave lying around, and posited that if the devil has the seed of snakes, of frogs, or of other incomplete animals, he could breed them there with the warmth that is generated.⁵⁸ During the latter, Geiler asserted that the devil was able to make snow, rain, wind, hail, and thunder because he could assemble the four humours (earth, air, water, and fire) for a brief period after seeing the sign of a witch. From this capacity, Geiler asserted that witches could make a hailstorm in a heated room – but that there must always be water present, as diabolic creation must have source material with which to work.⁵⁹

Geiler did not leave his Lenten audiences without recourse against these bowl-rattling and storm-bringing demons. In his thirty-second sermon of Lent, delivered on the Friday after Laetare, he suggested three potential useful instruments against the devil's manipulation of atmospheric conditions: weather blessings, the ringing of bells, and legislation.⁶⁰ The first

57 *Nun zu dem sybenden sprich ich. Was die natur nit vermag von yrselb nit gemachen, dass kan der tüffel auch nit machen. Nun die natur kan nit ein menschen in thier, noch ein thier in das ander verwandlen, so kan es der teuffel auch nit. Ibid., fol. XXXXIII^r.*

58 *Zu dem sechßten sprich ich. Das der teuffel die thier kan machen die von natur gemacht mögen werden. (Uel que generantur per putrefactionem.) Als da seind meuß vnd schlangen, frosch, wenn man etwan wüst lang lat ligen, so mögen schlangen darin wachsen. Also kan der teuffel wen er den somen hat von schlangen von fröschen, oder von andern unfolkummen theiren. So kan er in auss bryeten durch die worme und wie er im den thüt. Ibid., fol. XXXXII^r.*

59 *So kan der teuffel, Schnee, Regen, und Wind, Hagel, unnd Sunren machen, wan er die feuchtikeiten zammen bringen kan in einer kurtzen zeit, wann er die zeichen sicht der hexen. Darumb die hexen können ein hagel machen in einer stuben. Es müß aber alwegen wasser da sein (Oportet habere mateeia subiectam.) Ibid., fol. LV^v.*

60 *Die dryt frag ist Wan es dunret vnd man besorgt den hagel zc. So mag man das wetter segnen. Da sprich ich ya, wan warumb, der teuffel macht sein gefert da obnen herab vff das erdtreich, darumb so*

directly called upon God to exorcise bad spirits, the second took advantage of the sacred sounds, and the third relied upon legislation to punish and execute female storm-bringers. He also mentioned an approach from Gaul and Swabia which was practised in Alsace: speaking selections from the Gospel of John to the storm. Geiler provided the Scriptural source of authority for each (Book of Job, Old Testament, Emperor, and Gospel of John, respectively) and emphasized that calling upon God was the strongest remedy available to humans for magically-created bad weather.

These tools Geiler recommended to the godly as their means of overcoming the extreme weather events manifested by devil and his demons were familiar and well-known in the community. A common element of public space during the medieval period, both clergy and laity were fluent in the language of bells,⁶¹ which indicated time and summoned those within listening distance. Distinctions between the bells and the nature of their peals indicated to which manner of event the listeners were summoned, whether of religious or civil import.⁶² The sound of a larger bell ringing in a higher tower would carry further than its smaller, lower competitor, rendering the size of the bell and the height of its tower representative of the authority of its ringer. Unsurprisingly, bells and towers were tightly regulated for size and height.

mögen wir es vertreiben mit götlichen gewalt vnd götlichen dingen. Es hat ein grund vß der geschriff, das der teuffel wetter macht in dem Job, da macht der teuffel das feüer herab gon, vnd verbrent dem Job zehen kind syben sün und drei töchter. Er macht ein wind, der warff im das hauß vom. Es würt darauß genumen das man wider das wetter leutet, das man mit den leuten die bösen geist vertreibt, so sie hören die trumpeten gotes die glocken. Wan im alten gesatz, da bruchten sie trumpeten als wir ietz glocken bruchen.

Item man leutet das man die welt ermant, das sie sollen beten vnd got anruffen, das seind unsere gewer wider den bösen geist.

Es würt auch daruß genumen das man in Gallia vnd dobnen im land auch, da gat man den wetter entgegen mit dem sacrament. In schwaben da müß der priester für das dorff hinuß gon, und müß das ewangelium Johannis in den anfang was das wortt zc. Wider das wetter sprechen vnd das weter beschweren. Der keiser auch im keiserlichen rechten lobt die, die semliche wettermacherin straffen und abthün, und seind groß lobwirdig... Ibid., fols. LV^r-v.

61 Carol Symes, 'Out in the Open, in Arras: Sightlines, Soundscapes, and the Shaping of a Medieval Public Sphere', in *Cities, Texts, and Social Networks, 400-1500: Experiences and Perceptions of Medieval Urban Space*, ed. by Caroline J. Goodson, Anne E. Lester, and Carol Symes (Aldershot: Ashgate, 2010), p 295.

62 These could include the distribution of alms, the celebration of a particular feast, or warning of a military attack upon the community, as well as a summons to church attendance or protecting against storms. Ibid., pp. 297-300.

The Roman Catholic practice of exorcism was widespread and contested in late medieval Europe. Widespread in that exorcism could be found at all levels of religious pastoral care, from the municipal to the individual; contested in that many rituals to cast out evil spirits were unauthorized and improvised, leading to the suspicion that they were ineffective or, worse, served to summon the very spirits they were intended to remove.⁶³ However, the invocation of Saint John by speaking aloud the first words of his Gospel, as recommended by Geiler to his audience, was one of the more common practices of exorcists and, according to Sarah Ferber, an element of church magic much favoured since at least the turn of the millennium.⁶⁴

Legislation against witchcraft during most of Geiler's lifetime had been formulated a millennium before, as it was based on sixth-century Justinian law codes re-discovered and reintroduced to Europeans during the twelfth and thirteenth centuries. It was supported and guided by a series of Papal decretals and bulls which increasingly emphasized the heretical nature of using magic.⁶⁵ These culminated in 1326 with the blanket excommunication of anyone convicted of involvement with demonic invocation and demon worship.⁶⁶ By the last half of the fifteenth century, these religious views of magic and witchcraft - which had gained prominence with William of Auvergne, bishop of Paris from 1228-49,⁶⁷ and Thomas Aquinas⁶⁸ - found social authority and coalesced into laws which identified such behaviour as a crime and provided for its punishment. Uniting the authority of the Latin Church with civil legislation against unorthodox spiritual activity of any kind, a combination of the inquisitorial procedure and the introduction of judicial torture in the 1400s had created a

63 Sarah Ferber, *Demonic Possession and Exorcism in Early Modern France* (London: Routledge, 2004), pp. 17-20.

64 *Ibid.*, p. 21.

65 In 1184, Pope Lucius III issued the decretal *Ad abolendam*; in 1231, Pope Gregory IX issued the decretal *Ille humani generis*; in 1258, Pope Alexander IV issued the decretal *Quod super nonnullis*, and in 1326, Pope John XXII issues the bull *Super illius specula*.

66 Michael D. Bailey, 'The Age of Magicians: Periodization in the History of European Magic', *Magic, Ritual, and Witchcraft*, 3 (2008), 1-28 (pp. 9-13).

67 *Ibid.*, p. 15.

68 *Ibid.*, p. 14.

legal process whereby an inquisitorial tribunal was responsible for investigating accusations of witchcraft and for persecuting the case. Magistrates could also initiate investigations based merely on reports or rumour, without any formal accusation having been laid.

Trials were held in at least six towns of western Switzerland during the last decades of the fifteenth century,⁶⁹ although only of individuals or small groups. Works such as the *Malleus Maleficarum* urged for more widespread and intense persecutions, but trials for witchcraft declined in number even in those areas where they had sprung up most quickly, eventually petering out by 1507. Legislation, however, like that of Maximilian I mentioned by Geiler or of the Bishop of Bamberg, whose new laws issued in 1507 justified the use of torture and execution for the crime of using magic, remained active. They were frequently invoked during the second and greater wave of accusations and executions in the latter half of the sixteenth century,⁷⁰ during which, according to research by Wolfgang Behringer, there was a correlation between extreme weather events and scapegoating activities such as witchtrials and burnings.⁷¹ With his appreciative inclusion of legislation against witchcraft as a suggested remedy for storms, Geiler expressed his approval for the punishment of theological crimes by civil authorities, despite the separation between clerical and lay communities he preferred.⁷²

The substance of this section has been given to reporting Johann Geiler's representation of nature and briefly exploring some of its implications. Despite the absence of any mention of current weather events or their consequences for his fellow Alsatians, by Good Friday he had managed to inform or, more likely, remind regular audience members about how the

69 Valais, Lausanne, Vevey, Neuchâtel, Bern, Fribourg im Breisgau, and Basel. Edward Peters, 'Superstition, Magic and Witchcraft on the Eve of the Reformation', in *Witchcraft and Magic in Europe: The Middle Ages*, ed. by Karen Jolly, Catharina Raudvere, and Edward Peters (London: The Athlone Press, 2002), 173-245 (p. 238).

70 *Ibid.*, pp. 238-45.

71 Behringer, 'Climate Change and Witch-Hunting', pp. 335-51.

72 Voltmer, 'Political Preacher', p.80; for a detailed discussion of the issue, see Voltmer, *Wie Der Wachter*, pp. 251-69.

elements of the natural world were created by God and gained their behavioural traits, that not all untoward encounters with the non-human world were diabolical, that human witches could not directly cause bad weather and who was, in fact, responsible for some of it, and how to address that situation, among other things. Geiler did not create his representation of the natural world himself, but learned much of it during his education and professional development. From what intellectual perspective was Geiler preaching? This question is explored in the next section.

2.b Natural philosophy, theology, and Geiler

Geiler's prominence as a reform-oriented Catholic preacher shortly before the onset of the Protestant Reformation has sharply focused scholarly attention on his theological relationship to the upcoming religious turmoil, as mentioned earlier. However, just as Rita Voltmer drew attention to hitherto unconsidered political aspects of his career in the pulpit, the role of natural philosophy in his education and his preaching has gone unexamined until now. Developing a deeper understanding of the manner in which he represented the natural environment, then, is reliant on knowledge of the intellectual and theological traditions and debates in which he was educated and from which he preached. This section of the chapter describes the dominant ideas of the early sixteenth century, their development and controversies, and Geiler's position with respect to them.

As summarized by Edward Grant in his volume *The Nature of Natural Philosophy in the Late Middle Ages*,⁷³ the university-trained theologian of the late fifteenth century would

73 Grant, *The Nature of Natural Philosophy in the Late Middle Ages*. Much of what follows in this section is based on this work and the following: Sachiko Kusukawa, *The Transformation of Natural Philosophy: The case of Philip Melanchthon* (Cambridge: Cambridge University Press, 1995), pp. 1-27; Alistair E. McGrath, *The Intellectual Origins of the European Reformation*, 2nd Edition (Oxford: Blackwell Publishing, 2004), pp. 67-88; William J. Courtenay, 'Antiqui and Moderni in Late Medieval Thought', *Journal of the History of Ideas*, 48 (1987), pp. 3-10; Heiko A. Oberman, 'Via Antiqua and Via Moderna: Late Medieval Prolegomena to Early Reformation Thought', *Journal of the History of Ideas*, 48 (1987), pp. 23-40; Norman Kretzmann, Anthony Kenny, and Jan Pinborg, eds, *The Cambridge History of Later Medieval Philosophy* (Cambridge: Cambridge University Press, 1982).

have enjoyed a thorough knowledge of Aristotelian natural philosophy. The mid-1100s inception of translations of Aristotle's *libri naturales*,⁷⁴ *Metaphysics*, and other works from Arabic and Greek to Latin magnetized the attention of scholars, and the dramatic (re)appearance of this rich vein of Classical philosophy coincided with – and supported – the establishment of the university as an institution. Undergraduate students all shared a common course of study in the Arts Faculty before specializing, if accepted, in one of the higher degrees of theology, law, or medicine. The medieval Arts curriculum quickly came to lean heavily on Aristotle's works about natural philosophy and logic, and students exhaustively trained to master a six-step format interrogating natural phenomena from the perspective of the Classical Greek philosopher.

The unlimited and imaginative range of theses which emerged during the twelfth century included those whose conclusions conflicted with Church teachings; in particular, the Aristotelian method sometimes brought exponents to logical opposition with orthodox doctrine about, for example, God's capacity to overcome the materially impossible, the existence of other worlds (such as heaven), or the eternal nature of God. These unexpected intellectual shocks inspired religious authorities repeatedly to attempt bans on the reading, discussing, or teaching of Aristotle, which culminated in the Condemnations of 1277 issued by Etienne Tempier, Bishop of Paris.⁷⁵ Nevertheless, however explicitly the threat of excommunication was made in the Condemnations, they failed to prevent the penetration of Aristotelian natural philosophy and the philosopher's analytic methods into Arts faculties, including that at the influential University of Paris.

During this campaign by the Roman Catholic Church for intellectual control of the educated elite in late medieval Europe, another overt and more effective attempt to dam the

74 These works included *Physics*, *De Caelo*, *On Generation and Corruption*, *On the Soul*, *Meteorology*, *Parva Naturalia*, and biological works such as *The History of Animals*, *The Parts of Animals*, and the *Generation of Animals*. Grant, p. 32.

75 Grant, p. 51-3.

application of Aristotelian methodology to matters of faith was the oath required of Arts masters that they avoid the introduction of theology into their interrogations, initially required at the University of Paris in 1272 and soon elsewhere. Questions about God's omnipotence, His essential nature, or the truthfulness and accuracy of Catholic doctrine were to be avoided, or, if perchance theology or questions about God did appear, any issues were to be resolved in favour of God's supremacy as articulated by Catholic orthodoxy. With an intellectual predisposition for avoiding supernatural explanations for natural phenomena, masters were happy to exclude theological questions and issues from their Arts curriculum.

However, since Catholic doctrine included clear representations of the natural environment as God's Creation, a consequence of excluding God from the construction of theses meant that direct observation of the natural world as a way of proving or disproving a hypothesis was also excluded. Rather than suppressing natural philosophy, however, the oath served to create a situation where generations of graduates concluded their Bachelors and Masters of Arts with a solid foundation in Aristotle's quantitative and analytical methods as speculatively applied to natural philosophy, which, if the student progressed to the doctoral stage, was then brought to bear on theological, medical, or legal questions.

For the post-graduate theologian interested in exploring questions about God's Creation, two aspects of conceptualizing His power gained prominence in mid-thirteenth-century Paris and provided a way of measuring it while simultaneously guaranteeing His freedom: the *potentia absoluta* of God (the unlimited power of God to manifest His will) and His *potentia ordinata* (the subset of choices made by God in creating that which we now know as the natural environment). Essentially, these concepts provided a way of comparing the difference between hypothetical reality and actual reality; what were the choices God had made to create the earth, for example? Since God ordained that reality, both hypothetical

and actual, would function within the bounds of logic, logic itself became the primary method of understanding God's will.

The prevalent analytical approach became known as *questiones*, where first the theme was introduced, and then a question established, such as whether (*utrum*) there are, or could be, more worlds than ours, or whether the universe exists in eternity. If the question's resolution led to a logical contradiction, God could not perform the hypothesis; if no contradiction was involved, there would be no impediment to this particular manifestation of God's power.⁷⁶ In the oral form, the master posed and answered the question himself, with any objections spontaneously raised by auditors to be addressed on the spot. The student was expected to participate either as a respondent to objections raised or to determine and resolve a question himself. For university masters of any subject, this format was a regular feature of intellectual life. Although the imaginative flourishes of hypotheses questioned by medieval scholars was later denigrated this application of logic to intellectual matters was the primary feature of the scholastic method and remains a primary feature of intellectual activity today. Moreover, unprecedented level of imaginative interrogation into potential possibilities for God's Creation developed, largely due to scholars having been denied empirical observation as a means of confirming their hypotheses about the natural environment.

Two significant drawbacks to the scholastic method were an inability to resolve an argument, and the atomization of Aristotle's treatises. Regarding the first, scholars relied on established authors for arguing their thesis; settling a dispute relied on consensus, as rare in late medieval Europe as today. Extracting unique statements from Aristotle's works for elaboration and questioning, however, may have exerted a more depressing influence on the development of natural philosophy, as it prevented syntheses of issues into conclusions

⁷⁶ Grant, p. 308.

and stymied investigation into the Aristotelian worldview for inconsistency, deficiencies, or weakness.⁷⁷ For assistance in constructing their theses, scholars called upon respected authorities from the Church or elsewhere, which led both to the unquestioning perpetration of error and endlessly repeated circular arguments.⁷⁸

As a result, late medieval theological discourse developed towards abstraction.

Hypotheses, conclusions, and refuted arguments were an important part of demonstrating solutions provided by a God-given reason alone within the framework of faith; they were thought experiments designed to refute or uphold a theory.⁷⁹ The question of the relationship between a concept and the material example of that concept became hotly debated, likely due to the contribution its resolution would make towards validating increasingly abstract and obscure speculations. The issue came to be sharply focused on the question of universals, which is to say, on the question of whether or not universal concepts like 'green' possessed an existence independent of the human mind and, if so, how this related to their material subjects, like trees or grass. One perspective was that shared by scholars such as Peter Abelard or Roscelin, who referred to universals as 'concepts created by the mind without extramental referents.'⁸⁰ That is to say, as created purely within the mind, such concepts could not, therefore, possess any inherent relationship to external reality.⁸¹

This view, initially referred to as *terminist logic*, eventually became associated with the term *nominalism*. In his detailed study *The Intellectual Origins of the European Reformation*, though, McGrath notes that the term seems to have disappeared from use during the thirteenth century, rendering its application to scholars of the 1300s such as

77 Ibid., pp. 45-6.

78 'It is no exaggeration to characterize medieval Aristotelianism as empiricism without observation.' Ibid., pp. 221. See also Ibid., p. 45.

79 Ibid., p. 223.

80 McGrath, p. 68; cited also in Courtenay, p. 7.

81 Courtenay, p. 7.

William of Ockham or Gregory of Rimini an anachronism. The question addressed by the term did not disappear, however, nor did the predisposition to refute the reality of universal concepts. Instead, the extrinsic relationship of concept to reality became part of a larger movement in late medieval theology known as the *via moderna*, which, as characterized by McGrath, was based on broad and loosely defined common epistemological assumptions shared by prominent individual scholars and those under their influence. Most particularly, *moderni* shared a confidence in the methodological approach of logical criticism for understanding God and his Creation, taking advantage of the speculative opportunities provided by the distinction between the *potentia absoluta* and the *potentia ordinata*, along with the recognition of God's freedom in behaving reliably when exercising his will regarding Creation. This last view was known as 'voluntarism' (in that God voluntarily chose to uphold his agreement with human beings), and led to the merciful view that doing one's best, or *facere quod in se est*, was rewarded with the gift of justifying grace.

Voluntarism's theological implications were particularly relevant when it came to religiously meritorious action, where an awareness of the distinction between a moral act, committed by a human being, and God's acknowledgement of that action as religiously meritorious led to doubt about the eternal efficacy of the sacraments or moral behaviour for winning human salvation. To uphold their efficacy, scholastics of the *via moderna* come to consider God as having voluntarily and charitably chosen to be reliable in awarding merit to specific deeds. This led to a view where receiving a sacrament inspired an act of charity, or grace, from God, as he voluntarily fulfilled his promised will in bestowing the blessing.⁸² With respect to natural philosophy, voluntarism meant that the natural world could be relied upon to continue as God had created it, notwithstanding God's freedom to miraculously intervene in normal operations.

82 McGrath, pp. 80-2.

In contrast with the modernist view, theologians of the *via antiqua* continued to agree with Aquinas' expansion of Augustine's concept of a created 'habit of grace' which, as a supernatural element in the soul, was understood to mediate the human relationship with God. In this context, acceptance of the sacraments was the crucial means of bringing the human soul to its maker by changing the very constitution of the people who received them into something which was able to approach God. Something (the sacraments) happened to fallen human nature which allowed it to be acceptable to God;⁸³ God's purity prevented Him from approaching humanity on His own.⁸⁴ Other components of the *via antiqua* included an acceptance of linguistic structures as part of the essential nature of things, independent of human convention or grammar. This view, known as modist logic, modistic logic, or speculative grammar, attempted to understand language and reality through three 'modes': *modi essendi* (the way of being), *modi intelligendi* (the way of understanding), and *modi significandi* (the way of meaning).⁸⁵

Philosophical methods and perspectives as varied as the *via moderna* and the *via antiqua* were entirely acceptable within the late medieval Catholic Church. Intellectual freedom offered to theologians was not yet hampered by political divisions supported with military action, as would occur in the sixteenth century and afterwards. While disputes between terminalism and realism or about the nature of justification might roil, proponents were free to determine their opinion in each dispute with a relative independence from political considerations. Although universities might become known for teaching associated with a particular *via*, such as Cologne's association with the *via antiqua* and Erfurt's with the *via moderna*, Geiler's *alma mater* at Basel was one of many where theologians from both *viae*

83 Alister E. McGrath, *Christian Theology: An Introduction* (Chichester: John Wiley & Sons, 2011), p. 356.

84 Whereas sixteenth-century reformers would locate the basis of human justification in God's gracious favour, Aquinas argued for the need of an intermediary in the process of humanity's acceptance by God – the habit of grace, or 'habitual grace'. Ibid.

85 Courtenay, p. 7.

associated comfortably.⁸⁶

The relationship between the natural philosophy debated at the medieval university and the theoretical knowledge of nature among the laity was primarily mediated by preachers, as seen in Geiler's attempts to educate his audience with insights from natural philosophy.

Alongside the administrative and political training whereby universities served the agenda of their founders, mediation of learned knowledge into surrounding populations became an important consequence of their establishment. According to Hans-Jocher Schiewer, 'In the late fourteenth and in the fifteenth centuries universities became more and more service institutions which - through their academic teachers - authorized, mediated and distributed theological knowledge and sermons in the vernacular.'⁸⁷

Geiler was no exception to this profile of the late medieval theologian learned in Aristotelian natural philosophy. We know from Wimpheling, for example, that the two met when Geiler was instructing classes in Aristotle as part of his university career (Geiler being five years senior to Wimpheling).⁸⁸ Geiler's sermons in 1509 regularly and casually refer directly to the philosopher; knowledge of Aristotelian natural philosophy is found throughout *Die Emeis*. Even the basic format of Geiler's sermons is structured similarly to the *questiones* method used by university theologians trained in natural philosophy: following an introduction of the theme, Geiler poses a question, and then answers it with lists of supporting evidence. The questions he asks are variations on the theme of personal improvement - 'What can we learn from this?', or 'What should I learn from this?' - a form suitable for preaching, rather than debating. He regularly ascribes the interjection of questions or objections to his audience or responds to actual unrecorded comments, which

86 Oberman, p. 24.

87 Hans-Jochen Schiewer, 'Universities and Vernacular Preaching: The Case of Vienna, Heidelberg, and Basle', *Medieval Sermons and Society: Cloister, City, University*, Proceedings of International Symposia at Kalamazoo and New York, ed. by Jacqueline Hamesse, Beverly Mayne Kienzle, Debra L. Stoudt, Anne T. Thayer, Fédération Internationales des Instituts d'Études Médiévales, Textes et Études du Moyen Âge, IX (Louvain-La-Neuve: Collège du Cardinal Mercier, 1998), p. 396.

88 Schmidt, p. 5.

give him the opportunity to clarify his previous point.⁸⁹ His early training in Aristotelian natural philosophy was clearly an enduring influence, and evident in his preaching.

Geiler is challenging to situate with respect to the two significant theological approaches of the late medieval period, since recent scholarship of the period positions individual scholars according to the methodology taken in their publications. Geiler, however, was self-consciously transmitting the knowledge of theologians as a preacher, rather than developing it further as a natural philosopher, which he would only have expected to do as the occupant of a position at a university. The change in his career path from academia to the pulpit drew his focus away from active scholarship, and because his surviving works do not show him disputing or arguing, this makes his personal method of approaching questions and issues obscure. His position *vis á vis* contemporary theological schools of thought, then, must be discerned from whose arguments he chose to preach and whose he ignored.

E. Jane Dempsey Douglass, author of an in-depth exploration of Geiler's theological views in her volume *Justification in Late Medieval Preaching: A Study of John Geiler of Keisersberg*, understands Geiler to have been a traveller on the *via moderna*.⁹⁰ She points out that Geiler's preaching on the nature of sin and free will illustrate this conclusion,⁹¹ as do his views on the role of grace in human salvation. Although not uniformly (Geiler struggles to reconcile with Augustine's comment that God draws some men towards him and not others), Douglass' survey of Geiler's surviving works concludes that the preacher agrees with Biel that *facere quod in se est* is sufficient to receive God's grace,⁹² and that

89 While Voltmer (*Wie der Wächter*, pp. 216-7), perceives Geiler as engaged in an imaginary exchange with his audience, there are suggestions that late medieval Catholic sermon audiences were not necessarily quiet, orderly, or passive, and Geiler may have as easily been responding to heckling or questions from the audience as imagining their occurrence.

90 Brady agrees. Brady, *Protestant Politics*, p. 21.

91 Geiler speaks of sin as 'negative space', where it is a "privation of the splendor of the soul like a shadow which is a privation of light", Johann Geiler, "De xii fructibus spiritus sancti" in *Sermones prestantissimi ... fructuosissimi de tempore et de sanctis accomodandi* (Argentine, 1515).

92 *Sed ais: quid de puero enutrito in nemore et solitudine aut pagano nunquid huius ligula cordis: tendit in deum per fidem? Respondeo post beatum Thomam in 3. scripti. Si facit quod in se est: utendo donis suis*

free will allows for this to happen if chosen.⁹³ In *Die Emeis*, Geiler's perspective on the question can be seen in his faith that God will reliably bestow the blessing sought by any particular sacrament and the sharp contrast he makes with the Devil's unreliability and his confidence that the natural world will continue as God designed it.

As well, Douglass finds Geiler's broad-minded spirit of inquiry, prepared as he was to transcend the schisms and party struggles of late medieval theology, to be characteristic of the *moderni* and in contrast to the suspicious approach of the *antiqui*.⁹⁴ Geiler maintained this spirit even at the end of his life, when, at sixty-three years of age in 1509, his ninth and tenth Lenten sermons focused on the communal nature of ant society and the absence of impediments erected by ants for one another in achieving their goals. Particularly in the tenth sermon, the essential unity of the Christian church was explicitly emphasized with comments like 'whoever has something good to say is for me a good teacher',⁹⁵ accompanied by sharp criticism of unseemly and useless bickering between schools of thought.

Johan Geiler von Keysersberg, then, can be considered a *moderni* in the context of late medieval theological schools; his professional reputation as a learned scholar rested upon the depth and breadth of his knowledge in that Aristotelian-shaped field. Aristotle's *Meteorologica* (translated into Latin by Gerard of Cromona in the twelfth century) did not provide, though, an adequate explanatory framework for understanding extreme weather events. The philosopher explained the operations of rain, tornadoes, thunder, and lightning,⁹⁶ but did not include reasons for their occasional expansions into extreme

connatis et naturalibus. illuminabit wel per se wel per angelum aut hominem. Si hoc non fecerit sed cor suum peccatis infecerit: abutens naturalibus donis: non est mirum si non attrahitur per magnetem illum... Johann Geiler, *Nave penitentie*, ed. Johannes Otther (Augsberg: Augusta vindelicorum, 1511), fol. XIP^v.

93 Douglass, pp. 112-20.

94 Ibid., p. 104.

95 *Es gilt mir als gleich er sei wer er wol, die weil er etwas gûts saget, so ist er mir ein gûter lerer.* Geiler, *DieEmeis*, fol. XXVIII^r.

96 Aristotle, *Metereologica*, trans. By H.D.P. Lee (Cambridge, MA: Harvard University Press, 1952), pp. 68-71 and 222-31.

weather events or a meaningful understanding of any ensuing disaster. To understand the causes of natural disasters and to provide a way of addressing them, Geiler turned to spiritual agents: Satan and his demons, generally, but also God and His angels. Highlighting again the many differences between natural philosophy of the fifteenth century and twenty-first-century natural science, Geiler preached from the cutting edge of natural philosophy not only by including the role and influence of the devil and demons on nature in his sermons, but by carefully working out the logical implications of demonic activity in a natural world created by God, operating with His wisdom and according to His design (for example, see note 48). While explicitly valuing the use of reason in understanding revelation, thereby illustrating once more his orientation towards the *via moderna*, Geiler and his most respected contemporaries 'thought with demons'.⁹⁷

Demonic participation in earthly life was a fundamental assumption of late medieval Catholic Europe and, as such, was as taken for granted and unquestioned as the participation of God and his host of angels. Late medieval theology comprehended Lucifer's fall as a punishment which deprived him and his associates of God's grace - but which jailed them on Earth and left their preternatural essences largely intact. The devil and his demons were understood to be impotent before the laws of nature, as only its creator had the ability to transcend the order He had created. They did have, however, ancient and complete knowledge of the natural world, having been present at its creation, as well as great strength and fantastic speed. These relics of their angelic nature made demons superior to humanity in terms of their knowledge of the environment, and their ability to manipulate it. Objects, for example, could appear to have changed location instantly through the intervention of a demon, bodily humours could be disturbed by the same, leading to illness, or the weather could be directly affected. Two other factors complicated the subject: unlimited powers of deception were ascribed to the devil, and the

⁹⁷ Clark, *Thinking with Demons*.

natural world itself was capable of producing wonders and appearing to produce wonders. For any event, then, theologians were faced with the need to discern between real demonic effects, illusory demonic effects, real natural wonders, and illusory natural wonders, or any combination of the four.

It is important to underline that demonic and diabolically-influenced events, while distinct from the order of nature as created by God, were categorically understood to be an aspect of it: the devil was constrained to operate within the sub-lunary sphere as part of his punishment. He could create *mira* (wonders), but *miracula* (miracles) could only occur through the will of God. In the late medieval distinction of natural and supernatural, only God could be understood as supernatural, due to his capacity as creator of everything else. All of creation, that which was created, is, therefore, natural, and this included the devil and his fellow fallen angels, as well as angels who remained loyal to God in heaven.

Thomas Aquinas exerted a great influence in the establishment of this view in the thirteenth century, when he asserted that God alone could perform miracles. Aquinas went on to say that although it may seem that a creature is performing miracles, they are not true miracles but performed through hidden natural forces, like the miracles of demons.⁹⁸

Recognizing a *mira* from a *miracula* required solid knowledge about natural causation, research suitably conducted in the late medieval period by scholastic theologians trained in Aristotelian natural philosophy. Several of Geiler's sermons during the 1509 Lenten cycle show the precision of his demarcation between the natural order of events and an unholy interference in that order, such as where he says the devil needs the seed of an animal in order to create them, or when he comments that the devil can only make a storm if water,

98 *Sic autem praeter ordinem causarum secundarum operari solius Dei est, qui est huius ordinis institutor, et huic ordini non obligatur. Alia vero omnia huic ordini subduntur, unde miracula facere, solius Dei est, secundum illud Psalmistae: qui facit mirabilia magna solus. Cum igitur ab aliqua creatura miracula fieri videntur, vel non sunt vera miracula, quia fiunt per aliquas virtutes naturalium rerum, licet nobis occultas, sicut est de miraculis Daemonum, quae magicis artibus fiunt; vel si sunt vera miracula, impetrantur per aliquem a Deo, ut scilicet talia operetur.* Thomas Aquinas, *Compendium theologiae*, transl. Cyril Vollert, S.J. (St. Louis & London: B. Herder Book Co., 1947), lib. 1, ch. 136.

the basic material, is already available. The devil and his demons may be able to manipulate material objects and the natural world to threaten people and destroy property, but Geiler explicitly warns that the devil cannot make something come to pass which is not already part of the natural order.

When communicating the approved understanding of the non-human environment, then, Geiler drew on his training in both natural philosophy and theology to develop his arguments supporting limits to diabolic action in a divinely-created environment. As noted by Clark, the demands of late medieval Christianity were that the devil be strong in relation to humanity and weak in the face of God's power.⁹⁹ Two brief examples: firstly Geiler's rejection of wolf attacks as universally motivated by diabolic agents, as described earlier. Secondly, his careful sorting of the actors at work in the creation of a destructive hailstorm: the witch may be malicious and have traffic with the devil, but humans do *not* have the ability to exercise supernatural power. If threatened by diabolical events, human beings were advised to restore the natural order by calling upon their stronger ally, God, to conduct exorcisms which would dispel the unholy spirit at work. Geiler, then, was educating the listeners in Strasbourg's Cathedral about widely held, theologically-sound methods for securing good weather, when he recommended ringing bells, exorcising the clouds, and legislating against summoning evil spirits. Remembering that Geiler is reasoning from a sixteenth-century faith-based standpoint, and not from the perspective of twenty-first-century scientific materialism, his comments about the natural world are perfectly rational, and he repeatedly confronts views which, in his opinion, are irrational because they are not in concordance with natural philosophy or Scripture.

It is important to note that Geiler's exploration of witchcraft and magic in *Die Emeis* was not limited to its use with respect to the natural world. Geiler asserted a number of

⁹⁹ Clark, p. 153.

positions during his career, listed by Rita Voltmer: that the devil was very much available, even eager, to compact with humans: that sexual relations between humans and demons were possible, as was the impregnation of women by demons with stolen human semen; that the notorious night flight, whether by women to a gathering of witches or by men to the mountain of Venus, whether willingly or unwillingly undertaken, was both a dream vision and bodily possible, but in any case, depended upon the devil's powers for execution; that women participating in a night flight with pagan goddesses or fairy folk was a diabolic illusion performed upon the borrowed bodies of sleeping women; that the devil attempted to harm human bodies and souls through diverse strategies, including the introduction of illness to humans and animals, as well as through bad weather, and all the damage was only undertaken with the permission of God; that any damage inflicted through sorcery should on no account be annulled though the use of further magic, divination, or magical conjuring, and only authorized remedies, such as prayer, crossing oneself, confession, or sacramental objects were to be used; that the success of exorcism depended upon the purity and piety of the exorcist; that human metamorphosis into animal was impossible; that most of the phenomena attributed to magic (displacement by spirits, visions, changelings, witches riding horses to exhaustion, love charms, or knocking spirits) were illusions or spells cast by the devil, or simple frauds; that the vulnerability of women to diabolic sorcery was due to their inherent nature, but that this nature also gave them a greater understanding, so that women were both the most pious and the most evil of humans; and, finally, that the reason God gave such destructive power to the use of devil, sorcerers, and magicians was to drive the wicked further into diabolic perversion so as to test the pious and the good - although this did not excuse civil authorities from prosecuting heretics, blasphemers, and magicians as appropriate.¹⁰⁰ As asserted earlier, magic was understood to be a tool with which certain ends were achieved; the only legitimate

100 For a fuller discussion of these opinions, see Voltmer, 'Du discours à l'allégorie', pp. 65-70.

practitioner was God and his unfallen angels.

Alongside intellectual trends and assumptions such as these in natural philosophy and theology, late medieval Europe also saw the emergence of Humanism as an intellectual attitude. Northern European humanists found common ground in three ideals, methods, and presuppositions: a literary or cultural programme focused on the ideal of good literature, a religious programme directed towards a renewed Christianity, and a political programme working towards peace in Europe.¹⁰¹ Geiler's vocation brought him into distinct alignment with the second and it is unlikely that he disagreed with the other two. His goal of a refreshed Christianity, though, can be understood as related more to his sense of responsibility for the Church in general, and for his community in particular, than any donning of a humanist identity, based as it was on a self-conscious participation in a linguistic and literary network with which Geiler did not engage. Indeed, Thomas Brady, Jr, declares that Geiler is more attuned to Blickle's notion of communalism, to which the clergy should provide spiritual service, than 'the caesaropapist Ghibellinism of many Germany humanists'.¹⁰² This did not prevent him from close friendships with the humanists of Strasbourg, particularly with Jacob Wimpheling, who enjoyed Geiler's support for his project of erecting a civic Latin school in the city.¹⁰³ Education, however, was not exclusively a humanist pre-occupation, and, other than noting the social proximity of humanists and their potential informal influence on Geiler's preaching style, the impact of humanist philological, textual, and rhetorical foci on the same is not of concern here.

This section has described the intellectual and theological trends and debates of Catholicism in the late fifteenth century, within which Geiler was educated and composed

101 McGrath, p. 40.

102 Thomas A. Brady, Jr., "'You Hate Us Priests:' Anticlericalism, Communalism, and the Control of Women at Strasbourg in the Age of the Reformation', in *Anticlericalism in Late Medieval and Early Modern Europe*, ed. By Peter A. Dykema and Heiko A. Oberman (Leiden: Brill, 1993), 167-208 (p. 183).

103 As found in Geiler's letter to Wimpheling. Johannes Geiler von Kaysersberg, *Die ältesten Schriften Geilers von Kaysersberg*, ed. by Léon Dacheux (Amsterdam: Rodopi, 1965; repr. Freiburg im Breisgau: Herder, 1882), pp. 101-2.

his sermons. He was identified as ascribing to ideas most commonly found within the *via moderna* and articulated views that emphasized God's voluntary commitment to Christians, such as the guarantee of His side of the sacramental agreement (see note 52) and the dependability of the natural world's continuance. Fallen angels were included by Geiler as active in nature and their influence was comfortably incorporated alongside God's design as acceptable explanations for natural events and processes in his sermons.

Assumptions about supernatural and divine intervention in the natural world were integral to Catholic representations of the environment in the early sixteenth century. As a highly-educated cleric, Geiler's easy command of Aristotelian natural philosophy and doctrinal orthodoxies regarding demons and the devil reinforced cultural views of nature which were the basis of apotropaic ritual behaviour (see section 3.e). Geiler enjoyed an ability to communicate successfully, among other things, the intricacies of late medieval scholastic natural and philosophy and demonology to his audience; this contributed to his importance as an influential cultural agent and emphasized his leadership in establishing culture-wide views of the natural world.

2.c Source Material for Geiler's Sermons

While the intellectual and theological context for Geiler's sermons provides the framework within which the preacher composed his ideas, details about specific sources that likely contributed to his sermons are useful for a full understanding of their relationship to the broader culture. This section of the chapter describes the form of his 1509 Lenten sermon cycle, speculates about the change of theme mid-way, gives an in-depth exploration of *Die Emeis'* source material, and discusses the sermons' format.

Geiler spoke about ants for the first fifteen days of Lent that year, and promised forty-five

more sermons,¹⁰⁴ placing this brief comment from Scripture immediately before his audience at the beginning of his preface to the annual sermon cycle. The following Sunday, and daily after Ash Wednesday, he began to preach about the inspiration which Christians could find in the wide variety of their occupations,¹⁰⁵ their varying appearances and associated qualities (X^r), the teeming crowds of self-directed ants (XIII^r), the piety of their self-governance (XV^r) and concord (XVII^r), their wisdom (XVIII^v) and their many ways of making secret paths for themselves (XXIII^r), their communal labour (XXV^v), their avoidance of impediments (XXXVII^v), and their moral progress towards the Easter miracle (XXIX^r), that they must seek their food (XXX^r) and the manners in which they do so (XXXII^r), their ability to prophesize the weather (XXXIV^r) and the marvels of their eyes (XXXV^v). After preaching a preface and these fifteen ant-centred sermons to start the Lenten fast of 1509, he interrupted his momentum to take up witches and unholy creatures as thematic inspiration.

It was not unusual for Geiler to interrupt his theme and return to it weeks, or even months, later, particularly when elaborating an important point. He had done similarly during the Lenten sermon cycle of 1502, where he interrupted the theme focused on the Ship of Penitents to elaborate upon suggestions for items to be thrown overboard in order that the Promised Land should be attained. Moreover, he was known to stretch the thread of a theme over two years or longer, as had occurred at least six times (*Todus-Zyklus*, 1495-97; *Narrenschiff*, 1498-99; *Schiff der Pönitentz*, 1501-02; *Seelenparadies*, 1503-05; *Sünden des Munds*, 1505, and *Sünden am Geheimen Ort*, 1506).¹⁰⁶

Geiler's motivation in interrupting the Ant series is open to speculation. For example, there is a slight thematic connection between the final sermon of 'Die Emeis' and those of 'Von

104 Voltmer, p. 946.

105 Geiler, fol. VIII^r. The following list of citations will be put directly in the text, with only the start folio of each sermon provided.

106 Voltmer, *Wie der Wächter*, p. 946.

den Hexen und Unholden': for the fifteenth sermon, delivered on the Tuesday after Reminiscere, Geiler took up the miraculousness of the eye of an ant (Pauli includes both *wunderbarlicheit der augen* and *oculorum mirabilitas*) and expanded upon this by exploring the meaning of dreams, in which the devil featured prominently. As explored in some depth during the previous section, Geiler knew the devil as a master of illusion – a capacity often articulated as tricking the sense of sight. It may not be a coincidence that Geiler chose to expand upon the marvels of the ants' eyes with twenty-five sermons about how one's sight may be tricked by the devil. It is possible that Hans Baldung Grien, the artist known for vivid images of witches and whose woodcuts illustrate both editions of *Die Emeis*, may have been among the crowd, as city records show that he acquired citizenship on 17 April 1509, and would have resided in Strasbourg beforehand.¹⁰⁷

Although his presence has not been confirmed, its possibility does make available the suggestion that Geiler was inspired to speak on a subject of common interest. However, answering questions about motivation for the change of subject matter in the sermon cycle remain in the realm of conjecture, as little can be proven.

Geiler was no stranger to working with words articulated first by other men. Sebastian Brant's *Das Narrenschiff*, a parody of the Catholic Church as an 'arc of salvation', was the conceptual foundation for not just one, but two distinct sermon cycles (later published): one preached in 1498/99 and based directly on the *Ship of Fools* itself, entitled *Navicula sive speculum fatuorum / Narrenschiff*. The second cycle, an original and theologically based response to the sarcastic *Ship of Fools* called *Navicula Penitentia (Schiff der Pönitentz / Ship of Penitents or Ship of Holy Ones)*, was delivered as Lenten sermons in 1501 and 1502.

107 Rita Voltmer, *Wie der Wächter auf dem Turm: ein Prediger und seine Stadt Johannes Geiler von Kaysersberg (1445-1510) und Straßburg*, Beiträge zur Landes- und Kulturgeschichte, 4, ed. by Franz Irsigler (Trier: Porta Alba, 2005), p. 61.

For Lent 1509, Geiler drew from a variety of material: two works by Johannes Nider (two collections of sermons entitled *Formicarius* and *Praeceptorium divinae legis*), as well as a commentary on the Ten Commandments by the same author; the *Opusculum de sagis maleficis* by Tübingen priest Martin Plantsch and the *Malleus Maleficarum*. This infamous last work was authored by Alsatian Heinrich Kramer, who was born in Sélestat c. 1430 and later styled himself as Henricus Institoris. Jacobus Sprenger, who died in Strasbourg in 1495, is frequently associated with the work, but it is now thought that his association was more a result of Kramer's desire to bring credibility to it than active contribution from Sprenger.¹⁰⁸

Geiler primarily used *Formicarius* as a template for 'Die Emeis', albeit with great freedom;¹⁰⁹ the same latitude is found in 'Von den Hexen und Unholden', where the preacher plumbed the *Praeceptorium divinae legis*, the *Malleus Maleficarum*, and the *Opusculum de sagis maleficis* for his material. The *Malleus Maleficarum* itself incorporated much material from Nider's *Praeceptorium divinae legis*, occasionally directly, as well as from Book V of *Formicarius*. However, Gerhard Bauer's careful inter-textual analysis of Geiler's twenty-second sermon shows that the preacher used all four volumes as source material, as passages in *Die Emeis* are found in the *Malleus Maleficarum*, but not in *Praeceptorium divinae legis*, and vice versa.¹¹⁰

Nider's works, then, emerge as the primary sources for Geiler's *Die Emeis*, with important secondary sources being the *Opusculum de sagis maleficis* and the *Malleus Maleficarum*. Who was Johannes Nider? A Swabian Dominican trained in theology at the universities of Vienna and Cologne, Nider (1380/85-1438) was known in Strasbourg for his preaching and his passion for reform. He witnessed both the Council of Constance (1414-1418) and the

108 Hans Peter Broedel, *The "Malleus Maleficarum" and the Construction of Witchcraft: Theology and Popular Belief* (Manchester: Manchester University Press, 2003), p. 19.

109 Bauer, p. 148.

110 Bauer, pp. 148-51.

Council of Basel / Florence (1431-45), the latter as prior of the Dominican convent which hosted many of the proceedings in the Alsatian city. As leader of a central hive of activity, he had an influential role during the gathering's early months, before the full volume of participants had arrived and the Council divided into four sub-committees ('deputations' on faith, peace, reform, and common matters), when he was part of a small group of clergy guiding the Council's affairs.

The great debates which occupied the attention of Christendom's leading churchmen in Basel focused on social and ecclesiastical reform, the validity of religious lifestyles adopted by lay people (as exemplified by the Beguines and Beghards), and challenges by heretics. The latter discussion is thought to have been complemented by horror stories from local Alpine communities of apostate witches who entirely renounced Christ and worshipped instead his opposite, Satan, such as those from the Simme valley located about one hundred and twenty kilometres to the south of Basel. *Formicarius*, acknowledged as Nider's most influential work, is thought to have been composed from 1437-38, shortly after his departure from Basel for Vienna.¹¹¹

Ants and other insects were not an entirely unprecedented source domain for Nider (and, therefore, Geiler) to use as a metaphor for human society. Other theologians such as Etienne de Bourbon (c. 1180/95-1261), who also included them in his work for preachers *Tractatus de diversis materiis praedicabilibus*,¹¹² or Dominican Thomas of Cantimpré, whose influential work *Bonum universale de apibus* used bees and beehives as an allegory for his exposition on appropriate behaviour, found in such creatures an apt basis of comparison for humanity. The Biblical passage from Proverbs, naturally, stood as the ultimate authority and inspiration.¹¹³ Nider divided *Formicarius* into five sections, each

111 Michael D. Bailey, *Battling Demons: Witchcraft, Heresy, and Reform in the late Middle Ages*, The Magic in History Series (University Park: The Pennsylvania State University Press, 2003), Ch. 1.

112 Werner Tschacher, *Der Formicarius des Johannes Nider von 1437/38* (Aachen: Shaker, 2000), p. 139.

113 See n. 47.

with twelve chapters; with regard to formatting, the first few lines of each chapter introduce the ant quality to be mapped onto human behaviour, following which any references to ants are rare.

It is, for example, in Chapter 7 of Book One of Nider's work where Geiler found the specific material he used for the sermon recorded by Pauli, above. Copied virtually verbatim by the preacher, Nider wrote about a house or city constructed by the ants, each of which they cover with bits of plants to protect against the heat and rain. He asserted that ants have no leader or teacher, being guided directly by God in their building work, and that in form they are similar to those who pertain to the general council of prelates.¹¹⁴

Following this introduction, Nider immediately began to upbraid and chastise the Christian community of his day with the same fervour Geiler would show eighty years later, although with different details and emphasizing different themes. There is no further mention of the ants in this chapter; Nider was principally concerned with reforming his Church and society, and it appears that his understanding of ant society gave him confidence in them as a basis of comparison. Once that was established, his primary purpose was in criticizing and improving the behaviour of his human peers.

The use of someone else's material for the theme or content of his sermons was neither an unexpected nor a particularly radical act on Geiler's part. As Hughes Oliphant Old succinctly declares in his recent volume on the Medieval Church, good homiletic material was thought of as the common property of the whole church rather than the individual

¹¹⁴ *Domum situm sive civitatem construunt formice quam distinctam habitaculis diverse plantarum tegunt porticulis In quibus terplex innuitur mirabilis istorum animalium operacon. Nam civitatem quandam sibi construunt habitacula varia ibi edificant et talia tegunt con estus et pluuiam diverse plantarum porticulis. In quibus operaconibus nullus sue spetiei habent nigrim, sed deus tandem modo cuius instinctu in talium constructione situs reguntur et reformacone Typum aut in hiis gerunt proprie eorum, que ad generalia pertinent concilia prelato con percipue. Hii enim civitatem militantis ecclesie suis in edificiiis quantum sua interest Ubi ruinam patitur devrent reformare homines diverse moris deo ibi obsequendi construere et ab estu vicorum ac a gelicidiis inimicorum defendere et protegere et sese verbo et exemplo breve taliter ut in hiis a spiritu domino mererentur principalitus dirigi Ita enim hanc civitatem vidit Johannes descendentem de celo et in eodem oriri primitus. Vidi inquit civitatem sanctam iherusalem novam descendentem de celo a deo paratam sicut sponsam oratam viro suo. Sed heu hodie...* Johannes Nider, *Incipit prologus formicarii* (Köln: 1473), Liber Primus, Capitulum Septimum (p. 53).

property of the preacher who first came up with it, and was used again and again. One might say it belonged to the patrimony of the Church, and any preacher who stood in the succession of the apostles had a right to draw on it. A sermon was not supposed to be the message of a particular preacher but the gospel, the message of the Church.¹¹⁵ As well as Nider's work and similar items from other clerical predecessors - Jean Gerson and Gabriel Biel were particular inspirations – Geiler regularly used material from preaching aids such as the *Summa virtutum et vitiorum*, the *Speculum exemplorum*, or the *Speculum doctrinale*. He also found material for his sermon cycles from such secular sources as gemstones¹¹⁶ and, repeatedly, pilgrimage¹¹⁷ and the alphabet.¹¹⁸ From such an eclectic range of inspiration, there was nothing unusual about sermon cycle carried on the tiny backs of ants. Geiler's sermons generally followed the standard pattern and form of the ubiquitous late medieval thematic sermon. This is to say, his sermons identified a verse of Scripture as the theme, followed by its extensive exposition as applied to a moral, doctrinal, or practical question. This exposition was undertaken through the *Quadrige*, or the 'fourfold sense of Scripture', the most common manner of scriptural interpretation of the period. The four senses of Scripture were the following:

1. The *literal* sense of Scripture, in which the text was taken at face value.
2. The *allegorical* sense, which interpreted certain otherwise obscure passages of

115 Hughes Oliphant Old, *The Reading and Preaching of the Scriptures in the Worship of the Christian Church*, The Medieval Church, III (Cambridge, UK, and Grand Rapids: William B. Eerdmans, 1999), p. 219

116 Johann Geiler von Kaisersberg, 'Sermones tredecim de Gemmis spiritualibus' in *Sermones et varii Tractatus*, ed. by Peter Wickgram (Strasbourg: Johann Grüninger, 1518). Using an idea traceable to an Augustinian sermon, Geiler offered sermons about 'spiritual gems' (different virtues which could be compared to particular precious stones) annually on the New Year, from 1497 to 1508. Voltmer, *Wie der Wächter*, p. 956.

117 A pilgrim himself, Geiler was known to preach about pilgrimage at least three times: September-October 1488 at Augsburg; 1489 in the Strasbourg convent of St. Magdalena; and 1 March to 17 May 1500, in the Strasbourg Cathedral. Voltmer, *Wie der Wächter*, pp. 989-95.

118 *Sermones Alphabetici* were offered in Augsburg between 29 October and 28 December 1488, and again in 1490, at the Cloisters of St. Margaret and St. Agnes in Strasbourg. The sermons which were edited by Geiler into the publication *Sterbe - ABC* ('An ABC of Death') were delivered between 3 March and 1 April 1496 in the Strasbourg Cathedral. Voltmer, *Wie der Wächter*, pp. 1003 and 1007.

Scripture to produce statements of doctrine.

3. The *tropological* or *moral* sense, which interpreted such passages to produce ethical guidelines for Christian conduct.

4. The *anagogical* sense, which interpreted passages to indicate the grounds of Christian hope, pointing toward the future fulfilment of the divine promises in the New Jerusalem.¹¹⁹

The form of a Geilerian sermon can be reliably found to have been that of an argument, made to persuade the relevance of the verse to the salvation of souls in the listening audience. The style is associated with the scholastic method of logical disputation practised in universities, where theologians received their training, and is considered to be more structurally complex than the inwardly-oriented monastic sermon which was common until the mid-twelfth century. Where the monastic sermon was usually delivered to the cloistered in Latin, thematic sermons were delivered to a secular audience (one hesitates to impose the anachronistic term 'public') in the appropriate vernacular language.¹²⁰

This section of the chapter has detailed the source material Geiler used for *Die Emeis*, indicating strong influences from Johannes Nider in his theme and format. Although by this late stage of Geiler's career further support was likely superfluous, Nider's renown contributed to bolster the authority of Geiler's views in his community. Moreover, the form and style of his sermons point to a man confident both in his craft and that his message will be accepted by his audience. There is little to suggest that, along with other aspects to his Lenten sermons, Geiler's representation of the natural world was unusual or outside of

119 Alister E. McGrath, *Christian Theology: An Introduction*, 5th Ed. (Chichester: Wiley-Blackwell, 2011), p. 132.

120 Phyllis B. Roberts, 'Preaching in/and the Medieval City', in *Medieval Sermons and Society: Cloister, City, University*, Proceedings of International Symposia at Kalamazoo and New York, ed. by Jacqueline Hamesse, Beverly Mayne Kienzle, Debra L. Stoudt, Anne T. Thayer, *Textes et Études du Moyen Âge*, IX (Louvain-la-Neuve: Fédération Internationale des Instituts d'Études Médiévales, 1998), 151-64 (pp. 151-3).

acceptably orthodox parameters.

2.d Strasbourg and Alsatian society

While the intellectual context is an important part of interpreting Geiler's sermons, comprehending the influence his representation of nature may have played in his society's behaviour with respect to the environment leads to questions about his audience. Who stood in the Cathedral to listen to his sermons? What were their material conditions? What were the social, political, and economic relationships and institutions which ordered their lives, and how did those relationships and institutions respond when they came under stress from the natural environment?

Answering these questions provides information about the human and social biophysical structures in Strasbourg and Alsace, where biophysical structures are taken to be the physical structures which facilitate the biological processes enabling human society at all scales, such as human bodies, livestock, and artefacts. In effect, the material aspects of human society. These structures may be considered necessary for it to occur. Crucial to the purposes of this thesis, they were vulnerable to damage from events occurring in the natural environment. One of the central hypotheses of this thesis is that repeated and long-term material instability due to unstable climatic conditions applied stress to human and social biophysical structures (ie: the material aspects of human society). This in turn affected social, economic, and political relationships and stimulated cultural receptivity to new views of the natural world. In order to discuss this aspect of the thesis, a brief description of society in Strasbourg and Alsace is required. This section of the thesis, then, provides a general outline of biophysical structures and social relationships at a specific place (Strasbourg and Alsace) and time (the late fifteenth and early sixteenth centuries) as they existed prior to Luther's reforms.

There were approximately 20,000 souls living in Strasbourg when the calendar turned to 1500,¹²¹ and nearby Sélestat is thought to have reached 4000¹²² on a continent whose total population is estimated to have been circa 70 million.¹²³ Plague, however, removed 10 to 20% of Strasbourg's inhabitants per generation, interrupting a regular increase of people within the city walls.¹²⁴ Typical cities of sixteenth-century Europe are today recognized as having been 'population sinks' – centres of disease with a high death rate, replenished not by reproduction but through emigration.¹²⁵ With over 500 different professions practised, the town-dwellers sorted themselves around the parishes according to their economic activities, giving each quarter a particular identity.¹²⁶

Unfortunately, there is little reliable information about the exact composition of specific audiences in the cathedral. Even when illustrious personalities are known to have listened to his sermons, such as the one delivered in August 1504 to Maximilian I and his second wife, Bianca Maria,¹²⁷ they were two of a possible three thousand listeners in the nave that day.¹²⁸ However, since the cathedral was a centre of activity in Strasbourg and accessible to people from all socio-economic strata, demographic information is available which provides indications of the composition of an average audience. Moreover, a great deal of research has been conducted on Strasbourg and Alsatian society of this period, which permits an outline of society relationships and central institutions.¹²⁹

121 Jean-Pierre Kintz, 'Notes sur Quelques Aspects Demographiques de la Ville de Strasbourg', in *Strasbourg au Coeur Religieux de XVIe Siècle*, ed. by Georges Livet and Francis Rapp, Société Savante d'Alsace et des Régions de L'est, Collection 'Grandes publication', XII (Strasbourg: Librairie Istra, 1977), p. 13.

122 Martin Greschat, *Martin Bucer: A Reformer and His Times*, trans. by Stephen E. Buckwalter (Louisville and London: Westminster John Knox Press, 2004), p. 2.

123 Andrew Pettegree, *Europe in the Sixteenth Century* (Oxford: Blackwell Publishing, 2002), p. 1. See also, Bischoff, p. 50.

124 Kintz, p. 13.

125 A good synopsis of research on the topic is available in Robert Woods, 'Urban-Rural Mortality Differentials: An Unresolved Debate', *Population and Development Review*, 29 (2003), 29-46.

126 Kintz, p. 13.

127 Thomas A. Brady, Jr., *German Histories in the Age of Reformations, 1400-1650* (Cambridge: Cambridge University Press, 2009), p. 143.

128 Bischoff, p. 58.

129 Much scholarship has been devoted to Reformation-era Strasbourg. This section is indebted to the following, presented in alphabetical order for convenience merely: Martin Allheilig, ed., *Artisans et ouvriers d'Alsace*, Publications de la Société Savante d'Alsace et des Régions de l'Est, IX (Strasbourg:

Documents such as the Book of Donors (a record of donors and donations to the *Liebfrauenmünster* from 1320-1521) show that the Cathedral was beloved by people from all levels of Strasbourgeois society, any single member of which may have entered the Cathedral for Geiler's sermons or at other times. This brief depiction of Geiler's society follows a model articulated by the preacher himself in 1509, when he told his listeners that Aristotle divided all the cities and the people in the cities into three parts: the nobility, merchants, and the working people (including artisans such as tailors or shoemakers).¹³⁰ The inspiration for his interesting deviation from the traditional three-fold medieval conception of the social order (*orantes, laborantes, and bellantes*, or, as known in the local dialect, *praelaten/praelatenstand, landschaft, and ritterschaft*¹³¹) is unclear. Did it reflect an awareness of the demographic breakdown of the clergy's origins and the classes to which they might personally have the opportunity to provide pastoral care, the tightly restricted personal and legal presence of the Bishop of Strasbourg (the leading prince-bishop of the land, whose exclusion from the city also, to a certain degree, reflected the subordinate status of ecclesiastical authority to temporal within city walls), or, as Brady suggests, a material and spiritual division of labour?¹³² In any case, Geiler's divisions provide a neat framework for the following description.

Librairie Istra, 1965); George Bischoff, *La Guerre des Paysans*; Peter Blickle, *From the Communal Reformation to the Revolution of the Common Man*, trans. by Beat Kümin (Leiden: Brill, 1998); Peter Blickle, *The Revolution of 1525: The German Peasants' War from a New Perspective*, trans. Thomas A. Brady, Jr., and H.C. Erik Midelfort (Baltimore and London: The John Hopkins University Press, 1985); Thomas A. Brady, Jr., *Ruling Class, Regime and Reformation at Strasbourg, 1520-1555* (Leiden: Brill, 1978); Thomas A. Brady, Jr., *German Histories in the Age of Reformations: 1400-1650* (Cambridge: Cambridge University Press, 2009); Thomas A. Brady, Jr., Heiko A. Oberman, and James D. Tracy, *Handbook of European History, 1400-1600: Late Middle Ages, Renaissance and Reformation*, 2 vols. (Leiden: Brill, 1994); Miriam Usher Chrisman, *Strasbourg and the Reform: A Study in the Process of Change* (New Haven and London: Yale University Press, 1967); Marguerite Parayre-Kuntzel, *L'Église et la vie quotidienne du paysan d'Alsace au Moyen Age* (Strasbourg: Librairie Istra, 1975); Tom Scott, *Freiburg and the Breisgau: Town-Country Relations in the Age of Reformation and Peasants' War* (Oxford: Clarendon Press, 1986); Charlotte A. Stanford, *Commemorating the Dead in Late Medieval Strasbourg: the Cathedral's Book of Donors and Its Use (1320-1521)* (Farnham: Ashgate, 2011).

130 (...) *Aristoteles der teilt alle stätt, und das volck in den stetten in drey teyll. Ein teil seind die wercklüt, handwerksleut, wy sie dan heisen, schneider schümacher. Der ander teil das seind die burger. Die dritten die seind die edlen.* Johann Geiler von Kaysersberg, *Die Emeis*, ed. by Johannes Pauli (Strasbourg: Johann Grüninger, 1517), fol VIII^v.

131 Bischoff, p. 43.

132 Brady, 'You Hate Us Priests', pp. 182-3.

The right to bear arms, which was the general basic definition of a 'gentleman' in late medieval Europe, was materially based upon the ability to live from one's investments, either in land or trade, rather than by labour. Once the criterion was established, however, further access to status or power could depend upon various local or historical factors. Regarding Strasbourg, a charter granting the status of 'Free Imperial City' had been awarded to the municipality in 1262 by King Philip of Swabia, granting independence from the Bishop of Strasbourg after the battle of Oberhausbergen. A key aspect of this charter was the direct submission of the city to the Holy Roman Emperor personally; no intervening magnate, Prince, or Bishop (or Prince-Bishop), exercised authority over Strasbourg in the Emperor's name. This exemption from the complexities of multiple feudal authorities provided an unusual autonomy for the time and an opportunity for citizens without noble heritage to develop and exercise political authority.

The independence enjoyed by citizens of Strasbourg, however, was not shared by Alsatians in general. On the contrary, political authority over the region's peasants was exercised through a network of land ownership and military capacity which was held in a confusingly voluminous mixture of clerical and secular hands.¹³³ Concerning the former, the most influential among the clerical landowners - certainly able to equip and provide mounted knights if required - was the Bishop of Strasbourg, ousted from his cathedral seat in 1262. As landgrave of the region, the office's occupant was responsible for such things as safe-conduct of travelers and the legitimization of bastards. He and the Bishop of Basel exercised civil authority delegated from the Holy Roman Emperor, as did the Abbots of monasteries at Murbach, Munster, Gengenbach, Schuttern, Saint Blasien, and Saint Peter in

133 For an exhaustive description of political and economic conditions during the Bundschuh period in Alsace (1493-1525), see Georges Bischoff's *La guerre des Paysans*; for a brief discussion of the Bundschuh rebellions in relation to Freiburg-im-Breisgau, see Tom Scott, 'Why was there no Reformation in Freiburg im Breisgau?', in *The Early Reformation in Germany: Between Secular Impact and Radical Vision* (Farnham: Ashgate, 2013), 143- 81 (pp. 160-3).

the Black Forest; that of the Bishops of Metz and Toul derived from the Duke of Lorraine.¹³⁴ On the secular side, where military capacity was higher, noble landowners included the Count Palatine (the Margrave of Baden-Baden), the Duke of Lorraine, the imperial house of Austria, the Duke of Wurtemberg, three margraves from the Basel area, the Count of Hanau-Lichtenberg, the Count of Bitche-Lichtenberg, the Lord of Blâmont and the Baron of Morimont.¹³⁵

When the rumblings of revolution were heard in 1493, mid-way through that decade's five-year sequence of weather-related harvest failures, these men activated treaties and agreements to act in a unified manner to repress the plotting.¹³⁶ Following the 1499 Swabian War, weather-caused harvest failures of 1500 and 1501, and the ensuing regional famine, further unrest among the peasantry broke out in the spring of 1502 centred on the village of Untergrombach (now Bruchsal) between Karlsruhe and Speyer. Collective mobilization of these great landowners in response was quick and efficient. With the alert having been issued by the Bishop of Strasbourg, representatives of the Emperor, the said Bishop, the Count Palatin, one each from the counts of Bitche and of Hanau, two from Strasbourg, and nine from the ten cities of the *Zehnstädtebund*¹³⁷ (the Decapole) met together in Sélestat to plan their campaign, and the rebellion was ruthlessly suppressed.¹³⁸ By the time of Geiler's sermons in 1509, the top tier of Alsatian society had established a smooth operation for the maintenance of the status quo.

The two noblemen representing Strasbourg at the council in Sélestat would have been members of the *constofeln*, societies through which nobility mobilized political authority in

134 Bischoff, p. 45.

135 Ibid., p. 48.

136 Ibid., pp. 95-7.

137 Hagenau, Colmar, Wissembourg, Tuckheim, Obernai, Kaysersberg, Rosheim, Munster, Sélestat and Mulhouse joined together in a treaty of mutual support, ratified in 1354 by Holy Roman Emperor Charles IV.

138 Bischoff, pp. 103-5.

the city.¹³⁹ One element in the political elite, they could be characterized as a mixture of the descendants of noblemen remaining after the mass eviction of their peers in 1419 and guildsmen grown rich after decades of commerce, they held common cause with the powerful lords assembled against the peasants because, along with the city corporation itself, they were frequently landowners themselves.¹⁴⁰ Although the city was independent of any feudal overlords except the Emperor himself, thanks to the attainment of its charter, there were no legal barriers preventing Strasbourgeois from owning land and exercising commensurate authority over it.

Only one-third of the civic offices in the Free Imperial City remained available to the *Constofeln* by the early sixteenth century, with the remaining two-thirds reserved for guild representatives. Civil authority developed in the city to a complex bureaucracy of councils and committees, the most important of which were two privy councils, the XIII and the XV.¹⁴¹ The XIII was the senior and most influential privy council, whose leader was the ruling *Ammeister*. This man was necessarily a guildsman, as nobility were barred from occupying the office; he served a term of one year, but could return to the office (as many did). He was assisted by four of the five *Altammeister* (former *Ammeisters*), four *Stettmeisters* (nobles, appointed from the *Constofeln*, who rotated quarterly through the office) and four guildsmen. The XIII concerned itself primarily with war and diplomacy, although it could also hear legal appeals from municipal courts.¹⁴² The XV, established in 1433, was composed of five patricians and ten guildsmen (none of which could be

139 The term *constofeln* had to do with an ancient right and the means to stable horses within city walls.

Philippe Dollinger, 'La évolution politique des corporations strasbourgeoises à la fin du moyen âge', in *Artisans et ouvriers d'Alsace*, ed. by Hans Haug, Publications de la Société Savante d'Alsace et des Régions de l'Est, IX (Strasbourg: Librairie Istra, 1965), pp. 127-133.

140 The Sturm family, for example, held fiefs of the Holy Roman Emperor, the Elector Palatine, the bishop of Strasbourg and a number of lesser Alsatian lords; they were also seigniors of the village of Breuschwickersheim (a few miles southwest of Strasbourg). Brady, *Protestant Politics*, p. 17. See also R. Po-Chia Hsia, 'The Myth of the Commune: Recent Historiography on City and Reformation in Germany', *Central European History*, 20 (1987), 203-15 (p. 209).

141 Brady, *Ruling Class, Regime and Reformation*, pp. 118 and 165.

142 *Ibid.*, pp. 163-5.

Ammeister, Altammeister, or XIIIers) and occupied itself primarily with domestic affairs.

When they met together, they were known as 'the Senate and the XXI'.¹⁴³

Each councillor sat on one of many administrative committees, which were usually only composed of three men, and which oversaw much of the social and economic functioning of Strasbourg and its surrounding territories. There were boards for the poorhouse (*Almosenherren*), the fair (*Messherren*), the arsenal (*Zeugherren*), and the hospitals (*Pfleger der Blatterhus, Spitalpfleger*); for the schools (*Scholarchen* or *Schulherren*), construction (*Bauherren*), and civic property (*Allmendherren*); for each district (*Amt*) of the civic territory (*Landherren, Landpfleger*). Each privy councillor had to sit on as many as five of these boards, and occasionally held their posts for decades.¹⁴⁴ Holding civic office required an oath to the city; the annual avowal of the XXI and Senate became a municipal ceremony known as the *Schwörtag*; it was held on the first Thursday of every January and demanded that the newly elected gathered on a platform in the public square outside the Cathedral's western doors and, before the people, swear to uphold the city's Constitution.

Only citizens could represent a guild, while that status was not required of *Constefeln* appointees; citizenship required an oath of loyalty to the city and the duty to provide soldiers and arms for its defence. To become a citizen, one had to mount an application to the *Magistrat*, which was typically granted upon marriage or upon the payment of a fee. Various citizenship categories were available: *Bürger*, those who lived in the city and enjoyed the full political and economic rights of citizenship, *Ausbürger*, who lived outside the city but remained subject to Strasbourg's laws, and *Schultheißburger*, who resided in the city and could receive alms, but who were without political rights (ie: could not vote in guild affairs nor represent a guild to the *Rat*).¹⁴⁵ This last was an intermediate step towards

143 Ibid., p. 165. The reason for the numeric title is unclear, as the volume of councillors grew and diminished over years.

144 Ibid., p. 171.

145 Debra Kaplan, *Beyond Expulsion: Jews, Christians, and Reformation Strasbourg*, Stanford Studies in Jewish History and Culture (Palo Alto: Stanford University Press, 2011), pp 69-70.

achieving citizenship, and was often used as such by recent arrivals to Strasbourg at all levels of society.

Over the course of the fifteenth century, the increasing prosperity of certain guilds and particular guild families led to a situation where the representatives occupying these seats often were not themselves workers, but, instead, merchants at least as wealthy as the lower orders of the nobility.¹⁴⁶ Such men benefited from a regressive municipal tax scheme, where only the first 16,000 guilder of capital in one's possession was taxed; in 1501, Geiler denounced this from the pulpit as the 'stabling-money' of the rich.¹⁴⁷ The Upper Rhine was proverbially prosperous,¹⁴⁸ and, located as it was on axes of trade both north-south (from the Mediterranean to the Baltic) and east-west (see p. 60), merchants took advantage of its location to speculate in the cattle trade, to export grain and wine¹⁴⁹ and, when conditions were favourable, to speculate upon them as well.¹⁵⁰ From 1450 onwards, as well, resources formerly held in common were privatized at a heavy rate or development occurred without regard for communal welfare; a common complaint, for example, was the construction of a fish pond by landowners who were indifferent to downstream consequences.¹⁵¹

Whether wealth was gained by inheritance, appointment, land ownership, or trade, its possession meant having access to civic power in Strasbourg, and Brady notes that 'great wealth was relatively widely distributed through the corporate hierarchy [such] that no single aristocratic type could be exclusively identified with any single corporate institution'.¹⁵² Negotiated changes in the composition and membership of the privy councils stabilized in 1482 with twenty *Constofeln* and twenty guild representatives in office (guild

146 Brady, *Ruling Class, Regime and Reformation*, pp. 174-8.

147 Bischoff, p. 253.

148 Ibid., p. 71. See also Scott, *Freiburg and the Breisgau*, p. 18, and Brady, *Protestant Politics*, p. 16.

149 Tom Scott, *Regional Identity and Economic Change: The Upper Rhine 1450-1600* (Oxford: Clarendon Press, 1997), pp. 201-72.

150 Bischoff, pp. 71-3.

151 Ibid., pp. 282-9.

152 Brady, *Ruling Class, Regime and Reformation*, p. 96.

members would be willing to surrender their seat on the council when the required dues and fees were too onerous for the existing membership; many guilds merged with others, and a few were dissolved).¹⁵³

For the aspiring of Strasbourg, however, the elevation of one's status from merely wealthy to that of *Constofeln* was not impossible, and confident social intercourse between the two groups is demonstrated by such occurrences as intermarriage, the bestowal of extinct titles upon aspirant merchants, significant investment in mercantile activities by members of the nobility, and shared service to the territorial principalities. Despite this, distinctions between wealthy merchants and the *Constofeln* remained: the patriciate were banned from trade, and membership in the *Constofeln* remained an elusive honour for merchants, no matter how wealthy. These demarcations found substance in the political realm of the city, where the *Constofeln*, for example, could revise their own statutes and determine membership, most members were personally linked to the wider, even regional, networks of land-owning wealth, and, for an aristocratic scion, political service on any of the municipal bodies was gained by nomination.¹⁵⁴ In contrast to the greater autonomy of the nobility, the constitution and by-laws of guilds were vulnerable to review by Strasbourg's council for domestic affairs, the XV, and hopeful office-seekers faced the electoral process for the privilege of representing a guild within the city's administrative structure.

Civic councils, however, were not the only venue where the presence of noble authority might be felt inside the city wall. The Cathedral, with its exclusive membership of men whose families held positions in the Imperial Diet, was a site of undiluted aristocratic power within the city and region, as the chapter itself held property in the city and elsewhere; this was the body who held Geiler's contract. The pervasive nature of its

¹⁵³ Ibid., p. 128.

¹⁵⁴ Extended family networks were central to political affiliation, providing relatives not only access to the *Stammsitz* (ancestral residence) but also to the informal systems of communication and opportunities leading to civil authority. Ibid., pp. 38-41.

influence is demonstrated by circumstances in late fifteenth-century Sélestat, 45 km southeast of Strasbourg, where the Münster chapter owned a benefice whose funds also covered the salary for the town minister. Sélestatians' unhappiness with rapid turnover and a general (in)competency in the officeholders failed to find remedy until 1503, when (after decades of complaint) the chapter agreed to only receive its revenue when the pastor actually lived in Sélestat and fulfilled his pastoral duties to satisfaction.¹⁵⁵ Moreover, canons of the Cathedral Chapter were not necessarily themselves natives or citizens of the city; Wilhelm von Honstein, eventually Bishop of Strasbourg, was born in Thuringia and held benefices in Mainz, Cologne, and Strasbourg before his election to the episcopacy in 1506.¹⁵⁶

While materially benefiting from their association with the Cathedral, it must be acknowledged that the aristocracy also contributed towards its functioning and maintenance. Evidence for this can be found in obituary manuscripts from the Cathedral; such documents were compiled during the medieval centuries by church officials to celebrate bequests, whether for particular ecclesiastical purposes or for an institution as a whole. They provide important information about donors and their priorities. One such manuscript was created in 1508 by the Cathedral choir: identified as *ABR H 1613*,¹⁵⁷ it shows that bequests were made to the choir until c. 1530. The predominantly male gender and preponderance of surnames from the high nobility among the 829 donors (fifteen bishops, seven dukes, one count, and more than one hundred lords) indicate a strong likelihood that most donors were clergymen or their families;¹⁵⁸ these donations ensured that the choir was active in the cathedral on a regular, if not daily, basis.

155 Martin Greschat, *Martin Bucer: a reformer and his times* (Louisville: Westminster John Knox Press, 2004), p. 6.

156 Peter Gerard Bietenholz and Thomas Brian Deutscher, *Contemporaries of Erasmus: A Biographical Register of the Renaissance and Reformation*, I (Toronto: University of Toronto Press, 1985), p. 200.

157 Archives du Bas-Rhin H 1613; cited in Stanford, pp. 197-205.

158 Stanford, p. 201.

Another manuscript listing donations to the Cathedral is the Book of Donors, created c. 1318¹⁵⁹ in association with the Chapel of the Blessed Virgin Mary. Her altar was built on the northern side of the nave near the city altar at the centre of the choir screen in 1264¹⁶⁰ enclosed into a tiny chapel in 1316.¹⁶¹ The Book of Donors soon found a home within the Chapel, the duty of whose prelate it was to say a daily mass after Matins, to collect all the offerings placed on the altar, and to be present at the public reading of the account of these goods (as the Book is organized calendrically, presumably this would also be a daily event). He reported to the *fabrica*, the three-man administrative committee operating under the authority of the *Oeuvre Notre Dame*, the cathedral's building and management foundation, whose attention has been directed towards the on-going work of building and the maintenance of the structure itself since the late thirteenth century.¹⁶² Throughout the two centuries when donations were recorded in the Book, from 1318 to 1521, the main purpose of the *Oeuvre* was the construction of the western facade and two spires; during that time, the *fabrica* received a total of 8,622 gifts¹⁶³ from at least 7,848 donors¹⁶⁴ making 6,954 bequests.¹⁶⁵ Entries were made on every calendar page, ranging in number from seven to forty-two. While the northern spire was completed in 1439, however, later funds were regularly diverted to other projects¹⁶⁶ and plans for the southern spire came to naught. Apparently unaggrieved by the lack of a spire on her Cathedral, the Blessed Virgin Mary, as the spiritual matron of Alsace, the city of Strasbourg, and the Münster itself, extended her triply-concentrated protection on five occasions which came to be considered essential to the city's continued independence. In gratitude, the city council sponsored five annual

159 Ibid., p. 20.

160 Ibid., p. 78.

161 Lucien Pflieger, 'Erwins Marienkapelle im Strassburger Münster', *Elsassland Lothringer Heimat*, XVII (1937), pp. 168-70.

162 Stanford, p. xvi.

163 Ibid., p. 1.

164 It is possible that some of the unidentifiable donors were groups of people. Ibid., p. 27.

165 Ibid., p. 4.

166 One of which was the pulpit built for Geiler in 1485. Ibid., p. 107.

masses during the 1400s at the Virgin's Chapel;¹⁶⁷ after 1481, council members were required to attend each one and to distribute bread to the poor on the occasion.¹⁶⁸ The combination of civil patronage of the Chapel with the popular appeal of the Mother of God and the celebration of any bequests listed in the Book of Donors gives the impression of the Cathedral's nave as a hive of attention and activity.

Such activity may have extended into the night. An eighteenth-century work by Abbott Philippe-André Grandidier, *Essais historiques et topographiques sur l'église cathédrale de Strasbourg*, indicates that popular medieval traditions, such as children taking over the religious offices for the Feast of the Holy Innocents or overnight revelry to celebrate the anniversary of the Cathedral's dedication, were regular in the Münster until Geiler's successful campaign to repress them.¹⁶⁹ That the common people of Strasbourg had sufficient confidence to participate in the life of the Cathedral is reflected by the demographic breakdown of the donors in the Book. That is, while the obituary MS of the Cathedral choir shows donations divided almost equally between religious and lay donors and the strong presence of the aristocracy, 88% of those whose status was identified and who gave goods, property, or cash to the chapel of the Blessed Virgin Mary were members of the lay community.¹⁷⁰ Among them, the largest single group were the tradesmen and tradeswomen; people from eighty-six different trades donated to the Blessed Virgin Mary, including bakers, notaries, shepherds and a wet nurse.¹⁷¹ Extremely humble gifts, such as a single kettle or a few pence, are listed alongside items of extraordinary generosity, such as

167 The five masses were the Rhine Bridge mass (celebrated in memory of a flood and church in 1427 which prevented the Bishop of Strasbourg and his allies from seizing the lucrative bridge), and four other masses memorialising military victories by Strasbourg's forces during the Burgundian war. Stanford considers the Chapel to have been the focal point of public corporate devotion from 1308 onward. *Ibid.*, pp. 103 and 108-9.

168 *Ibid.*, p. 109.

169 Philippe-André Grandidier, *Essais historique et topographiques sur l'église cathédrale de Strasbourg* (Strasbourg: Levrault, 1782), pp. 72-5.

170 Stanford, p. 26.

171 *Ibid.*, pp. 35-8.

a house or 200 *lives*.¹⁷² It is impossible to understand individual motivations for donating beyond a desire to be involved in the material and social fabric of the Cathedral. However, that the humblest Strasbourgeois spared resources for the altar alongside the wealthiest citizen speaks to the broadness of its appeal as well as the engagement of lower-status citizens in activities taking place in the nave.

As well as participating equally in the life of the city's largest religious institution, the artisanal and lower classes of Strasbourg may have had, like the aristocracy and burghers,¹⁷³ familial ties, personal associations, or economic relationships with people in the surrounding countryside. Migration to the urban centre was regular, despite the consequences of leaving the countryside and of arriving in the city; Rapp notes that among the wealthiest peasants, it seems to have been the custom to let a member of the family settle in Strasbourg to act as a grain dealer.¹⁷⁴ However, official discouragement of the abandonment of farms by tenants was keen, including the confiscation of all goods left behind, and one can only imagine the social pressures created by the obligation of neighbours to reimburse a lord for losses caused by the migrant.¹⁷⁵ If an individual was embroiled in serfdom, restrictions were tighter or even inescapable; in 1512, for example, Jean-Ulrich de Ferrette demanded the people of Mulhouse return one of his serfs, who had settled among them, and in 1515, the Emperor Maximilian I prohibited serfs from Upper Swabia from settling in Strasbourg.¹⁷⁶

The countryside was not noticeably depleted by the trickle of people to the urban centre, although a scarcity of records makes it difficult to find clarity about annual or even decadal changes in late medieval rural Alsatian demographics. Records from rural Ban-de-la-Roche

172 Ibid., pp. 40-3.

173 Brady, *Protestant Politics*, p. 16.

174 Francis Rapp, 'The Social and Economic Prehistory of the Peasant War in Lower Alsace', trans. Bob Scribner and Gerhard Benecke, in *The German Peasant War of 1525 - New Viewpoints*, ed. Bob Scribner and Gerhard Benecke (London: George Allen & Unwin, 1979), p. 57.

175 Blickle, *The Revolution of 1525*, p. 50.

176 Bischoff, p. 277.

(50 km south-east of Strasbourg, in the Vosges), for instance, suggest a gentle growth rate by succeeding generations in the rural parts of Alsace: 73 houses and 383 inhabitants in 1489 rose to 107 houses and 560 inhabitants in 1534;¹⁷⁷ Francis Rapp suggests, however, that changing demographic figures like this may reflect a concentration of the population, rather than population growth, as people migrated to larger and safer settlements in the region.¹⁷⁸ Motivation for peasants move into Strasbourg may be found in the material and social conditions they endured, which were difficult, despite the natural wealth of the land based on agriculture, viticulture, and mining. George Bischoff points out that a year of harvest failure, with high prices of grain followed by reports of 'grosse sterbet' (great death), may be beneficial for the vendor of grain but catastrophic for the purchaser.¹⁷⁹ He draws a portrait of a peasantry burdened by taxation and debt, restricted from emigrating,¹⁸⁰ and infuriated by speculation and usury.

Consider, for example, the peasants of the Bruche Valley, in the Vosges Mountains west of Strasbourg: their taxes rose by 20% between 1482 and 1502, a symptom of the indebtedness of their overlord, the Bishop of Strasbourg. Although a quarter of the annual tax might be forgiven, or a little cheating might occur without penalty, the sum represented an increasing large portion of a small annual income, and private loans could be easily found with a small piece of land as a guarantee.¹⁸¹ Then as now, failure to meet a single repayment could result in the loss of the security - and, in the sixteenth century, frequently did. The Upper Rhine was an area where partible inheritance patterns were practised,¹⁸² which makes inter-generational continuity of property ownership more vulnerable to individual fortune, and land ownership became more and more concentrated in the hands

177 Bischoff, pp. 64-5.

178 Rapp, p. 53.

179 Bischoff, p. 69

180 Ibid., p. 277.

181 Ibid., p. 268.

182 Tom Scott, *Regional Identity and Economic Change: The Upper Rhine 1450-1600* (Oxford: Clarendon Press, 1997), p. 110.

of the elite. The peasantry, then, could fairly be described as 'squeezed by social contradictions',¹⁸³ for fiscal demands upon them during the late fifteenth and early sixteenth centuries increased, while war, pestilence, or bad weather leading to harvest failure destroyed their ability to fulfil those demands.¹⁸⁴ Peter Blickle's study of nearby Swabia, directly east of the Black Forest, shows that, there, forty to fifty percent of the population were without property¹⁸⁵ and, given a similar political structure exerting comparable demands, it is unlikely that the figure was dramatically different for Alsace.

Such conditions were likely the foundation of Tom Scott's 1997 research confirming contemporary complaints of an epidemic of vagrancy and begging by the poor, the homeless, the unemployed, and discharged mercenaries in Alsace.¹⁸⁶ In 2010, Bischoff explicitly attributed this restlessness to economic hardship¹⁸⁷ and extended the list to include a wider range of people than commonly assumed, including the respectable: a journeyman travelling from city to city, a beggar, a highway robber, a touring student, a peddler, a Jew, a pilgrim from Saint-Jacques, a band of lansquenets, a troop of minstrels or a caravan of merchants.¹⁸⁸ Increased taxes were regularly the cause of insurrection throughout southern Germany¹⁸⁹ and the Alsace was no exception, particularly in the unreliable climatic conditions of last decade of the fifteenth century and the first quarter of the sixteenth. As mentioned above, rebellion in the region was suppressed twice during Geiler's time in the Cathedral pulpit; named after the laced leather shoe of the peasants, the *Bundschuh*, the event in 1493 centred on a group of villages near the mountain of Ungersberg (northwest of Sélestat, in the Vosges)¹⁹⁰ and in 1502 around Untergrombach

183 Bischoff, pp. 451-2.

184 Blickle, p. 268.

185 Ibid., p. 72.

186 Scott, *Regional Identity and Economic Change*, p. 201.

187 Bischoff, p. 63.

188 Ibid., p. 61.

189 Peter Blickle, 'Peasant Revolts in the German Empire in the Late Middle Ages', *Social History*, 4 (1979), 223-39 (p. 231).

190 Bischoff, p. 83f.

(now Bruchsal), on the other side of the Rhine north of Strasbourg, between Karlsruhe and Speyer.¹⁹¹ The second uprising, in 1502, produced a written list of demands including the abolition of serfdom and all ground rents, tithes, taxes and tolls, as well as the division of monasteries and church property among the peasants. In their refusal to accept the territorial authority of any landowner except the Emperor, they attempted to circumvent most of the Alsatian landowning class of the area.

As part of their response to this last, the nobility drafted measures to inhibit insurrection that focused on stricter control over the movement of travellers, particularly of armed men: a prohibition against hosting discharged military men and vagabonds of all kinds was established; those who wished to busy themselves away from their residence were obliged to seek express permission from local authorities; innkeepers were prohibited from serving wine or allowing games of chance beyond a certain time (nine o'clock in the villages of the cathedral chapter of Strasbourg); after the curfew, regulars would have fifteen minutes to vacate the premises and guests would be confined to their rooms.¹⁹² Such restrictions would erode a communication network which relied on temporary or regular assemblies, like religious or secular festivals for the former or cathedral mass, as an example of the latter.¹⁹³

Written to describe general conditions throughout southern Germany, including Alsace, Peter Blickle's 1977 depiction of conditions before the 1525 Peasants' War is aptly cited here:

Gradually, through the fifteenth century, the farmer's position worsened, and this process accelerated in the decades before 1525 because usage rights were restricted, services were increased, and tax burdens fell with full effect on farming enterprises. Even though the lively market for agricultural products around 1500 meant that market-oriented peasants could make higher profits than before, the resulting situation for most peasants must have been miserable.

191 Ibid., p. 100f.

192 Ibid., p. 104.

193 Ibid., pp. 60-1.

The fact that these extra burdens were experienced as innovations could only further antagonize the peasant and sharpen the conflict.¹⁹⁴

Francis Rapp examined conditions specifically in Alsace a few years later in the context of the 1525 German Peasants' War.¹⁹⁵ After searching through demographic records for the fifteenth and early sixteenth centuries, he concluded that it was not a shortage of land which caused Alsatian peasants to rebel. He also noticed that during average conditions of the first half of the fifteenth century, rents and taxes did not consume all that was produced in years when conditions allowed for good harvests¹⁹⁶ and prices of a quarter of cereal almost invariably fluctuated between 40 and 90 pfennig.¹⁹⁷ However, increasingly severe price fluctuations arrived after 1460, with prices for a quarter of grain reaching as low as 26 pfennig and as high as 160 pfennig; similar fluctuations in wine prices coincided with those of grain. The destruction wreaked upon a social class - the peasantry - accumulated from crisis to crisis, such as those at the beginning of the 1480s, 1490s, and 1500s (see p.85ff); tenants fled when they no longer meet the burden of paying arrears on loans taken to meet tax and tithe obligations, and successors to the land were obliged to assume the debt load of previous occupants. While cautioning against a direct correlation of economic conditions with political unrest, his research nonetheless contributes valuable information to creating a greater understanding of the immediate and long-term economic consequences of harvest failure.

The institution of serfdom may be rendered virtually invisible through the use of a different frame of analysis, such as one which focuses more narrowly on the economy of the region. For example, political economist Tom Scott describes the Upper Rhine of the late fifteenth century as 'a specifically regional economic identity which had rested on a balance of

194 Blickle, *The Revolution of 1525*, pp. 50-1.

195 Rapp, 'The Social and Economic Prehistory of the Peasant War in Lower Alsace', pp. 52-63.

196 *Ibid.*, p. 56.

197 *Ibid.*, p. 58.

interests between the cities and the princes of the southern Upper Rhine'.¹⁹⁸ His detailed study of the region, *Regional Identity and Economic Change: The Upper Rhine 1450-1600*, meticulously describes the economic competition and related associations of peasants, craftsmen, tenant farmers, merchants, margraves, princes, bishops, and others during a period where he, like Bischoff, perceives political authority as acting to consolidate territorial dominion. The diversification and commercialization of agriculture, as well as the spread of rural crafts, guilds, and village markets, united with a mutually beneficial proximity of different ecologies and topographies¹⁹⁹ to support the perspective of the Upper Rhine as endlessly, effortlessly abundant. However, Scott also mentions that during the three decades while Geiler preached in the cathedral, officials struggled against inflation and *Fürkauf* (commercial dealings in essential commodities).²⁰⁰ Supporting the analyses of Bischoff and Blickel in their research into causes of the Peasants' War, the strain which Scott identifies amidst the appearance of plenty is economic in nature, ultimately concluding that the Alsace was unable to meet the challenges posed from changes in the balance between population and resources. He asserts that was due, in part, to problems posed by partible inheritance and the over-dominance of a single product (wine) in exports, but does not mention social inequality, political disorder, or the new religious movement as primary contributors of change from 1450 to 1600.²⁰¹

However, unequal access to the resource base (ie: land, livestock, or fish) meant that many were regularly hungry, poor, and when environmental conditions were particularly hostile, cold. Harvest failure or even poor harvests led to increasing prices which created conditions of dearth or famine for the poorest strata of society, as occurred for at least one-third and potentially up to one-half of the thirty-two years between 1478 and 1510.²⁰² When

198 Scott, *Regional Identity and Economic Change*, p. 321.

199 Ibid., p. 303.

200 Ibid., p. 203.

201 Ibid., p. 310.

202 See Chapter One. See also Blickle, *The Revolution of 1525*, p. 72; Bischoff, p. 69.

faced with such challenges, one resort was to physically remove to the urban centres, where help was made available. Geiler, among others, considered the welfare of the poor a priority, and was involved in renovating Strasbourg's welfare system throughout his career.²⁰³ His work contributed to meeting the basic needs of 1000 mendicants over the winter of 1510 (equivalent to over 5% of the city's population), as suggested by the chronicler Hieronymus Gebwiler, author of the *Straßburger Chronik* and the *Schlettstadter Chronik*.²⁰⁴ Figures from the mid-sixteenth century (when head counts by welfare donors became more regular) show that during harsh winters, peasants from the surrounding areas cast themselves upon the compassion of the citizens of Strasbourg. During the winter of 1565/66, for example, the extraordinary cold of the winter brought approx. 5000 people into the city, temporarily increasing the population to over 25,000.²⁰⁵

The Strasbourg community at any moment, then, likely included extra-mural visitors, along the entire socioeconomic range from the elite to the indigent. It is not beyond the realm of probability that such individuals would have visited the cathedral, listened to the famous preacher, and participated in the life of the nave.

Later in the sermon which framed this tripartite division of his society, Geiler went on to partition the clergy between all three groups, human equivalents to the ants who stand by the column to guard and guide the others: preachers among the workers, priests with the merchants, and the bishops and doctors with the nobility. He elaborated on this last, saying that the third type of ant stand by the path so others will know the way and defended their apparent idleness. When Prelates and Doctors are at home, some are reading books to learn how they should advise the Council on passing judgement, while others are learning about how to recognize goodness and punish evil. Bishops preach and teach about the way

203 Voltmer, pp. 547-82.

204 Bischoff, p. 62.

205 Jean-Pierre Kintz, 'Strasbourg cité refuge: mendiants, fugitifs, exiles', in *Regards sur l'histoire de l'Alsace XVIe- XXe siècle*, Hommage de la Fédération des Sociétés d'Histoire et d'Archéologie au Professeur Jean-Pierre Kintz (Drulingen: Scheuer, 2008), 20-48 (p. 21).

to heaven, said Geiler, and drew upon Saint Paul's association of shepherds and teachers to assert that Bishops lead their parishioners as little sheep and direct them like teachers.²⁰⁶ Geiler's description of preachers as occupying a leadership role in society was hardly accidental, casual, or naive; Voltmer has solidly established that Geiler understood the integrated accumulation of moral, social, and political power exerted by the Roman Catholic Church in his time,²⁰⁷ and that he did not shy away from exerting it in his attempt to establish his ideal of the New Jerusalem in Strasbourg. The first group upon which he focused his energy was the Bishop of Strasbourg, his court, and the higher clergy; to them he delivered the opening address in a diocesan synod in 1482, summoning them to purify their lifestyles with a detailed platform of specific renunciations and proposals for improvement.²⁰⁸

As Francis Rapp notes, however, 'the echoes of the sermon he pronounced before the synod died away quickly enough'²⁰⁹ and the religious elite chose to carry on as before. There is no record of Geiler repeating this formal attempt at diocesan reform, and Rapp attributes this to the preacher's dawning awareness that the ecclesiastical linchpin of the project, Albert of Bavaria, then Bishop of Strasbourg, was deeply cynical about the possibility of reform and enthusiastically distracted by the finances of the diocese which he inherited upon occupying the episcopate in 1478.

Having failed to move his peers, Geiler turned his attention to Strasbourg's secular

206 *Die dritten Emeißen sten an dem weg als wolten sie die andern den weg weißen, und die dritten menschen das seind die edlen, Prelaten, und besunder bischoff und Doctores. Es spricht mancher was hatt der edler der unnd der geschaffen, sie gond müssig sie gond nit müssig wan sie da heimen in den büchern lesen und lügen wie sie in dem rat sollen raten und urteil sprechen andre leren und den rechten weg weisen unnd das ubel straffen, das ist das eigen ampt, der bischoff predigen unnd den weg zû dem himmel leren zc. (Pastores et doctores) Hirten unnd lerer, darumb sanctus Paulus) der hat die zwei empter zesammen gebunden, hirten und doctores. Das sie sollen ire scheflyn weiden als hirten, und sie veisen und leren als doctores.* Geiler, *Die Emeis*, fol. LX^v.

207 Voltmer, 'Political Preaching,' p. 75.

208 *Ibid.*, pp. 81-2.

209 Francis Rapp, 'Jean Geiler de Kaysersberg (1445-1510): le prédicateur de la Cathédrale de Strasbourg', in *Grandes figures de l'humanisme Alsacien: Courants Milieux Destins*, ed. by Francis Rapp and Georges Livet, Publications de la Société savante d'Alsace et des régions de l'Est, Collection 'Grandes Publications', XIII (Strasbourg: Istra, 1978), 25-32 (p. 30).

authorities, with varying degrees of success. His agenda was wide-ranging and comprehensive, including the restoration and protection of ecclesiastical privileges, the restoration and preservation of sacred times and spaces, just legal practice in municipal courts, the restoration of true welfare and the establishment of a functioning poor relief system, as mentioned above, and the reformation of morals. The society of this heaven-on-earth would have been tightly, if not rigidly, ordered: each member ought to remain in his or her rank, given by God at birth, and there should be no movement up or down the social hierarchy; there ought to be strict separation of the religious from the laity and of the sexes (women were to be either at home or in church).²¹⁰ In the face of the apocalypse – which Geiler predicted in 1499 - this life of regular repentance, penitence, and preparation for a blessed death was the model of civic life he proposed for his city. His failure to impose this model is not surprising; what draws attention is the openness of Strasbourg's *Rat* to Geiler's suggestions in specific instances, including the regulation of prostitution or the founding of an infirmary for those afflicted by syphilis.²¹¹ His communication with civil authorities was conducted occasionally in writing,²¹² but for the most part, his message was delivered orally to an audience standing before the stone pulpit in the Cathedral.

Concluding this brief profile of the potential members of Geiler's audience in the Cathedral and his understanding of the role of the clergy in his community, it is worth noting that he also preached in places other than the Cathedral: to women in nearby convents (including those of St. Magdalena, St. Margarethe and St. Agnes, and St. Katharina, among others²¹³), to audiences in Augsburg,²¹⁴ and, upon invitation, to royalty.²¹⁵ He was well-known in the

210 Voltmer, 'Political Preaching, pp. 83-4.

211 Ibid., p. 86.

212 Voltmer, *Wie der Wächter*, pp. 122-4.

213 Ibid., pp. 944, 951, and 961.

214 Ibid., p. 950.

215 Geiler was a chaplain for Maximilian I, and, as mentioned above, both occasionally preached to the Emperor and at least once enjoyed his confidence. Douglass, *Justification in Late Medieval Preaching*, p. 5.

German-speaking lands during his lifetime;²¹⁶ we know this not from his boasts of his own reputation, but from the formal respect shown to him during his life (materially, as shown by the pulpit built for him, and intangibly, as demonstrated by the favour shown him by the Cathedral Chapter and the Emperor, as well as the respect shown by the City Council), combines with the accolades given him upon his death by Wimpheling and Brant, among others, to support the historical claim of his having been held in universal high esteem. At the centre of his appeal was his talent in delivering a good sermon.

The audience of a late fifteenth-century sermon could number to the thousands, with special outdoor venues being constructed for a popular preacher.²¹⁷ In this context, the construction of a stone pulpit for Geiler in the Münster's nave does not stand out as an exaggerated gesture but, rather, one communicating unmistakeable appreciation.

Strasbourg's desire to regularly enjoy his talents is primarily found in the creation of a permanent position and a contract, because, since the establishment of the mendicant orders, preaching had largely slipped out of the mass proper to fall within their purview. The sermon remained a basic element of church, while also playing an important role in the wider information culture of pre-modern society.²¹⁸ A famous preacher could anticipate receiving a formal and warm welcome upon arrival in a city; he would have negotiated a contract articulating the number of sermons, the schedule of their delivery, the location, and the remuneration he could expect from either a religious or secular employer.

Following the satisfactory conclusion of his contract, he would then move on. Geiler's contract specified that, except for his annual four weeks of leave, he was to sleep within

216 Brady, *German Histories in the Age of Reformations*, p. 140.

217 Larissa Taylor, *Soldiers of Christ: Preaching in Late Medieval and Reformation France* (Toronto: University of Toronto Press, 2002), pp. 9, 21, and 28-9. The following paragraph is based on this work. While Taylor's primary sources are from France, she recognizes that much of her theoretical inspiration and secondary source material is in reference to Germany. It does not seem inappropriate to take advantage of her work on preaching for my study of Alsace, particularly since she refers to Geiler at several instances.

218 Andrew Pettegree, *The Reformation and the Culture of Persuasion* (Cambridge: Cambridge University Press, 2005), p. 10.

the city walls unless given explicit permission to do otherwise by the Dean of the Chapter.²¹⁹

The audience generally stood during the sermon, although some brought stools and benches were sometimes available for distinguished citizens or pregnant women. Some must have leaned against the wall or pillar. Whether inside or out-of-doors, men were divided from women; when inside a church or cathedral, women were on the south side of the nave and men on the north. At sermons delivered out-of-doors, the sexes were separated by a rope. In the Strasbourg Cathedral, this division would have placed the distaff side further away from Geiler, and the men gathered around the pulpit. A reason for this segregation might be that, according to one source, women greatly outnumbered men in the audience and the noise of their children made it difficult to hear the preacher.²²⁰

The cries of small children would not have been the only competition for the preacher, as audience participation in a sermon could be expected and might include heated rejoinders, jokes, arguments, or active disputation among those who were giving their attention to the pulpit - particularly if his comments were sharp. Others gave their attention elsewhere: to their pet falcons, to dogs or other animals, to laughing, strolling, and chatting with their neighbours, to attractive members of the opposite sex, or to sleep.²²¹ Gaining the attention of the people in the nave may itself have been a victory for the preacher, challenging the communication of his central message as well as his representation of the natural world.

One element of Geiler's appeal to the Strasbourgeois, however, which fostered his reputation and regularly attracted audience members, was his willingness spontaneously to criticize the power-holders of Strasbourg alongside the average Christian. In 1500, Geiler railed against the city councillors as being all on the side of the devil, like their ancestors

219 Ibid, p. 21.

220 Hervé Martin, *La metier du prédicateur à la fin du Moyen Age* (Paris: Cerf, 1988), p. 558.

221 Taylor, pp. 33-4.

and progeny.²²² One can imagine the astonishment in the nave following this comment, and, like other preachers who confronted political authority,²²³ Geiler was invited to explain himself. Unlike other preachers, however, his stature in Strasbourg and his long-term commitment to the well-being of its indwellers had earned him the time to justify and explain: two councillors met him in the cathedral (his chosen meeting place) to discuss the matter. On 27 January 1501, he appeared before the Senate and XXI to voice his complaints in person and on 27 March, submitted a copy in writing. The XXI Articles of Complaint were moderate and aligned with existing legal structure; in following years, some of his proposals were accepted and put into practice.²²⁴ The respect accorded Geiler from Strasbourg's city council was rare; while preachers may have regularly attempted to awaken the Christian consciences of civil authorities, imprisonment, banishment, or exile was a more frequent consequence.²²⁵

A sermon in the late medieval *Liebfrauenmünster zu Straßburg*, then, combined moral instruction with entertainment, allowed for socializing in a lightly regulated venue, and invited the humblest to experience a taste of heavenly egalitarianism through communal worship alongside the most exalted in the land. A preacher's ambition was to capture and hold the attention of all who came, regardless of their motivation for being there. Geiler not only succeeded in doing so for three decades, but inspired such affection among the cathedral-goers that he continued to be present among them after his death, as it was felt appropriate to bury him at the foot of the stone pulpit he occupied for thirty-two years. His representation of the natural world was among the views which found social acceptance; an outline of the wide range of potential listeners includes those who benefited from the

222 *Also werre sinen herren fürkomen das ich uff der cantzel gesprochen het sye weren alle des teüfels, und ir vorfahren und ir nachkomen.* Johann Geiler von Kaisersberg, *Die ältesten Schriften Geiler von Kaysersberg*, ed. by Léon Dacheux (Freiburg im Breisgau: Herderische Verlagshandlung, 1877), p. 1. 223 Taylor, p. 35.

224 Voltmer, *Wie der Wächter*, pp. 418-32; Charles Guillaume A. Schmidt, *Histoire Littéraire de L'Alsace a la fin du Xve et au commencement du XVIe siècle*, 2 vols (Hildesheim: Georg Ohns Verlagsbuchhandlung, 1966; orig. France: Sandoz et Fischbacher, 1879), pp. 362-5.

225 Taylor, p. 35.

social order and those who were exploited by it.

This section has provided a brief outline of biophysical conditions and social relations in Strasbourg and Alsace during the late fifteenth and early sixteenth centuries, in order to provide the social context of Geiler's sermons and to provide a basis of comparison for changes in those conditions and relationships after 1517. These conditions and relations are an essential element in establishing an argument based on the hybrid and interactive model of socioeconomic metabolism, as they provide the physical means by which nature has an effect on humanity.

2.e Geiler, nature, and popular culture in Alsace

The extent to which Geiler's representations of the natural environment, as well as the philosophical and theological arguments upon which it was based, were accepted by other people in the society wherein he preached can be demonstrated by popular willingness to participate in ritual behaviour corresponding to his views. Some caution is merited in fully accepting the behaviour of the early sixteenth-century Strasbourgeois as proof of their unquestioning adherence to views presented from the pulpit, as sincere faith cannot be ascertained by behaviour from which withdrawal could earn social or political censure. Nonetheless, evidence suggests that Geiler's fellow Alsatians, whether urban, rural, literate or illiterate, exalted or reviled, made the same intellectual and spiritual assumptions regarding the natural world as he did, and, for the most part, were prepared to act upon them. Bell-ringing, sacred architecture, communal rituals, and exorcisms were demanded by local people and included most as participants, demonstrating close cooperation between civil and religious authorities in addressing the multi-faceted threat of bad weather.

The *Liebfrauenmünster zu Straßburg* had its share of bells, having hung at least five

different ones by 1500.²²⁶ Authorities poured and installed a bell to be rung specifically against bad weather in 1411;²²⁷ Sebastian Brant, in his *Annales*, reported that the bell was re-baptized and awakened for duty again in 1451.²²⁸ Alfred Pflieger reports that common people throughout Alsace referred to church bells as the 'Hounds of God', whose 'barking' was unendurable to the devil and any weather-making witches within hearing. The cloisters in Murbach had a bell known as the 'Big Dog', Bühl bei Gebweiler (near Mulhouse) had 'St. John's Dog', Mühlbach im Münstertal had 'Bartholomew's Dog' to ring out, and in Kaysersberg, close to Geiler's childhood home, the Oberhofhund, or 'Superior Court Dog'. These were all explicitly known as weather bells, to be rung as a way of dispersing storms and other threatening weather events.²²⁹ Documents tell of bells being rung against bad weather in Dossenheim (1481), Börsch (1487), Schlettstadt (1498), and Hunaweier (beginning of the sixteenth century).²³⁰

Other aspects of church architecture provided protection against destructive weather, albeit passively. On the upper part of the dome in the Strasbourg Cathedral, under the chandelier, there was an inscription on the western side: 'God protect me henceforth from thunder, hail, storms'. On the upper galleries, engravings of four sayings from the beginning of the Gospel of John (John 1:14) were made, aligned to the four cardinal directions and capped with the abbreviation of the name of Jesus Christ.²³¹ As mentioned above (see note 60), the Gospel of John was associated with protection against foul weather, and, while there is no direct confirmation of it, these may have been placed with the goal of protecting the cathedral against lightning and other elemental assaults.

226 François Joseph Böhm, *Description nouvelle de la Cathédrale de Strasbourg et de sa fameuse tour* (Strasbourg: J. Kürsner, 1743), pp. 53-8.

227 Alfred Pflieger, 'Wettersegen und Wetterschutz im Elsass', *Archiv für Elsässische Kirchengeschichte*, 16 (1943), 259-72 (p. 269).

228 Brant, p. 215.

229 Pflieger, 'Wettersegen und Wetterschutz', p. 268.

230 Ibid.

231 *IHS CHRS Verbum caro factum est* *IHS CHRS Et vidimus gloriam ejus*
IHS CHRS Et habitavit in nobis *IHS CHRS Gloriam quasi unigeniti a patre* Ibid., p. 261.

Demanding a much higher degree of organization than ringing bells or making engravings were the ritual observances now known as rogations, that is, communal processions to beseech God's protection. An early Christian development from Roman processions pleading with the goddess Robigo for her protection of crops,²³² these regular and common ritual observances in late medieval Europe were conducted not only to plead for security from bad weather but also for protection from other threats such as plague or invading armies. Drawing upon Lawrence M. Bryant's notion of processions as public spectacles which gave participants the opportunity to perform their religious and political identities,²³³ the composition of rogations and the route they followed was anything but casual. What follows is an exploration of that composition in Strasbourg, a few words concerning the frequency of the ceremony, then some details about the route of weather rogations through the city.

During the twelfth century, Sicardus of Cremona (1155-1215) included a description of rogations in his book *Mitrals*²³⁴ which was copied by Guillaume Durand at the end of the thirteenth century in his *Rationale divinarum officiorum*.²³⁵ The popularity of the latter volume, which survives in several instances, spread Sicardus' version throughout western Europe.²³⁶ He gave the order of participants in the procession as follows: positions at the beginning would be occupied by the clergy, followed by the religious male orders, nuns, novices, laymen, widows, and, at the tail end, married women. A slightly revised alternative shared one commonality: the clergy always led the procession, marching ahead of the laity. In his copy, Durand added that the crucifix and reliquaries should be carried at

232 Jussi Hanska, *Strategies of Sanity and Survival: Religious Responses to Natural Disasters in the Middle Ages*, *Studia Fennica Historica* 2 (Helsinki: Finnish Literature Society, 2002), p. 35.

233 Lawrence M. Bryant, 'Configurations of the Community in Late Medieval Spectacles: Paris and London during the Dual Monarchy', in *City and Spectacle in Medieval Europe*, eds. Barbara A. Hanawalt and Kathryn L. Reyerson (Minneapolis: University of Minnesota Press, 1994), p. 10.

234 Sicardus Cremonensis, *Sicardi Cremonensis episcopi Mitrals de officiis*, ed. Gábor Sarbak and Lorenz Weinrich (Turnhout: Brepols, 2008), col. 368.

235 Guillaume Durand, *Rationale divinarum officiorum* (Rome, 1477), fols. 235^v-6^r.

236 Hanska, p. 55.

the very front, so that the war banner of the cross and the prayers of the saints might clear away any demons who would face them.²³⁷

Strasbourg's processions did not deviate in significant ways from the model established by Sicardus and Durand. The entire religious community was involved in producing a rogation, which, by extension, meant that the organizers of the ritual demanded the participation of the great majority of those dwelling within city walls (clergy, canons, monks, parish clergy and their parishioners). All the workmen and artisans were required to participate through their guilds and to ensure that upper-ranking citizens did the same, the *Rat* legislated on three consecutive years (1469, 1470, and 1471) that no person should depart the town and suburbs on Wednesdays and Thursdays without special permission from the Ammeister.

A typical fifteenth-century weather rogation in Strasbourg might look like the one described by Johan Twinger von Königshoven in his *Chronik* of 1415.²³⁸ He noted that in the 1401, eight days after Candlemas (2/12 February), a rogation was organized in Strasbourg for the sake of good weather. It had been inspired by such heavy and on-going rains that daily life was difficult, made more so by a dearth of grain and fruit in the region. All the charities, the lame, and the cloistered were to begin at their own churches with the sacrament, and join together at the Cathedral, where the rogation would be organized. The students went first, with two flags, followed by the vicars and canons. After them came the Franciscans carrying the holy cross which regularly was positioned behind the front altar

237 Ibid, pp. 55-6.

238 *Do men zalet 1401 jor, 8 tage noch der liehtmesse, do wart ein crüzegang zû Strosburg gemacht umb gût wetter: wan es regente vil tage annander, das men zû ernen kume gesnyden möhte, und was gros breste an korne und an andern frühten in dem lande. herumb wart dirre crüzeganc ufgesetzt, got zû bittende umb gût wetter. und wart dirre crüzegang also bestellet, das alle stifte, kirspel und kloster soltent in der pryden mit dem sacramente umbegon, iegliches umb fine kirche, und darnoch gon zûm münster. und was zûm münster geordent, das die schüler vorgingent mit zwenen fanen, und dernoche die vicarien und dümherren, und dernoche trügent die barfüssen das heilige crüze das hynder fronalter in dem münster stet. dernoche drüg men das sacramente mit kerzen und schellen also gewonheit ist. dernoche gingent die manne, und keine frowe under in. donoch trügent die brediger unser frower, und gingent die frowern donoch und kein man. es was ouch verbotten bi 30 sol. d., das nieman an keyme venster solte ligen noch an keinre türe ston.* Königshoven, pp. 773-4.

of the cathedral; they were followed by those carrying the sacrament with candles and little bells. Then came the men of the community, followed by the preachers carrying an image of the Blessed Virgin Mary; the women of the community followed her. Any Strasbourgeois thinking they might watch the rogation from their window or door were discouraged from doing so with the promise of a 30 sol. Fine.

During the decades which followed Twinger's death, the position any individual occupied in a rogation became so contentious that in 1472 the Strasbourg *Rat* legislated the composition and choreography of the Corpus Christi rogation.²³⁹ Little had changed from Twinger's time, although careful attention was given to the placement and responsibilities of city officials (immediately following the holy sacrament and before the guild candles; to gather at the Cathedral's rood screen in preparation and for their servants to assist with the rogation, for example).²⁴⁰

Processions were a regular element in the liturgical year, and are known to have taken place on Pentecost, Corpus Christi (Thursday after Trinity Sunday, itself the first Sunday after Pentecost), Saint Luke's Day (18/ 28 October),²⁴¹ and St. Adolf's Day (11/21 February).²⁴² Beseeking God for good weather leading to a successful harvest was the particular focus of the major litany held on Saint Mark's Day (25 April/ 5 May) and the minor litany held on three annual Rogation Days held immediately before Ascension (15/25 August).²⁴³ Outside of regularly scheduled rogations, Strasbourg civil authorities organized the ceremony for unusual or unexpected reasons, such as the cessation of bad weather,²⁴⁴ protection against sudden calamities like earthquakes,²⁴⁵ or against threats to the

239 Luzian Pflieger, 'Die Stadt- und Rats-Gottesdienste im Strassburger Münster', *Archiv für Elsässische Kirchengeschichte*, 12 (1937), 1-56 (pp. 46-7).

240 Ibid., pp. 47-9.

241 Ibid., pp. 42 and 50.

242 Voltmer, *Wie der Wächter*, pp. 509-10.

243 Hanska, p. 35.

244 Pflieger, 'Die Stadt- und Rats-Gottesdienste', p. 46.

245 Signori, p. 292.

city during the Burgundian Wars.²⁴⁶

Twinger witnessed at least two weather rogations, according to his *Chronicle*: one in 1401, elaborated above, and another during the final year of his chronicle (1415).²⁴⁷ Other weather rogations are known to have taken place in the Free Imperial City in 1438²⁴⁸ and in 1473.²⁴⁹ Given the frequency such events were conducted during the focus period of this research, it is unlikely that there were only three weather rogations during the seventy-eight years of the fifteenth century before Geiler arrived in the Strasbourg pulpit; for example, Gabriela Signori reports forty processions mandated in Strasbourg during the late fifteenth and early sixteenth century. However, rogations which included or were specifically organized to pray for good weather have yet to be counted.

Two types of rogations were conducted in Strasbourg, smaller and larger.²⁵⁰ The small processions were so-called because they were limited to the symbolic perimeters of various parish, monastic and collegiate churches, and excluded the *Hochstift* (the territory of secular authority held by the Bishop of Strasbourg). The greater rogations solemnly circled the old town and sprang from the joint initiative of the Bishop, secular clergy, religious orders, and city council. The scheduled annual weather rogations were large events, as were many of the specially-organized weather processions, which emphasizes the importance attributed to them by organizers and participants.

The traditional path followed by processions was as follows: after having gathered around 8h00,²⁵¹ they departed through the main door of the Cathedral and went straight ahead, past the hospital on what is now Rue Mercier,²⁵² to pause for the first prayers at the parish church of Saint Martin. Crossing Rue des Ferruriers, they paused again for prayer at Saint

246 See Chapter One, note 55.

247 Schröder, p. 774.

248 Stanford, p. 110.

249 Pflieger, 'Die Stadt- und Rats-Gottesdienste', p. 32; see also Signori, p. 282.

250 Signori, p. 283.

251 Pflieger, 'Die Stadt- und Rats-Gottesdienste', p. 52.

252 Current street names are used for ease of identification.

Thomas' church, then went down the Grand Rue until the stone bridge by the tanners' ditch (possibly Pont des Faisans) and stopped to pray. From there they passed before L'Église de Saint Pierre-le-Vieux, carried on to the old wine market building, where a fourth prayer pause was held, and on to the *kirchgass* (possibly Rue du Dôme today) for the fifth. The procession wound down Rue de la Nuée Bleue until the horse market and the Gürtlerhof, where the sixth pause for prayer occurred. Crossing the Rue des Prêtres, they halted at the wells of Saint Laurent's chapel and prayed; turning behind the Bruderhoff, they went to the Bishop's palace, where the eighth and final prayers were delivered. From there, the procession returned to the nearby Cathedral and entered through the main doors.²⁵³

Occasionally lasting for an entire day, the procession criss-crossed the island of Strasbourg and nodded to all four cardinal directions around the Münster. Direct evidence of Geiler's participation in rogations of any kind is lacking. However, the demand by the *Rat* for full participation from all secular and regular priests in the city²⁵⁴ combines with the stipulations in Geiler's contract that he preach for processions required by public calamities to establish convincing circumstantial evidence for his presence as a reliable member of the clerical component of Strasbourg's weather rogations. Among the earliest rogations with which Geiler would have been involved as preacher and participant was likely to have been that on 2 July 1479, when the *Rat* hoped to end persistent rains with the ritual.²⁵⁵

Notwithstanding the community's efforts, the harvest failed and, despite a rogation organized by the *Rat* and *Hochstift* on 26 June 1480 for 'peace, good weather, and all other needs', did so again that year.²⁵⁶

Just before the Sunday preceding Rogation Week in 1482, the third spring in this sequence of annual harvest failures (see p. 86), the *Rat* distributed a note to the preachers of all the

253 Grandidier, *Essaies*, pp. 382-4.

254 *Ibid.*, p. 382.

255 Signori, pp. 315-6 and 318.

256 Pflieger, 'Die Stadt- und Rats-Gottesdienste', p. 35; see also Signori, p. 318.

city's churches. Its subject requested them to zealously urge their parishioners to join in the rogations begging God for good weather, so that the harvest might succeed. The drought led municipal officials to call for a greater earnestness of Christian devotion, in hopes of that God would provide succour.²⁵⁷ Another weather rogation was called during the summer of 1485;²⁵⁸ the faithful may have finally found justification for their ritual efforts, as the harvest that year was successful. Weather rogations were organized again by the *Rat* and *Hochstift* during the weather-induced crisis of 1511 and by the *Rat* alone during that of 1517.²⁵⁹

Processions pleading for God's protection were not limited to the Alsatian urban centre: in 1510, the commune of Ostwald, as part of their argument to the *Rat* for ecclesiastical independence from the Cathedral Chapter, included the protective powers of the rogation ceremony in the list of reasons for greater autonomy. A village southwest of the city on the Ill River, Ostwald had been annexed by Strasbourg in 1418, which incorporated the small community into the city's administrative orbit and made the appointment of a priest to the local church the prerogative of the Cathedral Chapter. In the third item of the document pleading their case for a local appointee, the village officials articulated their dismay about the absence of rogations to protect the fruit against thunder, hail, snow, flood, and other bad weather.²⁶⁰

257 *Ersamer lieber herrn, als man nach cristenlicher ordnung dise crütze woche mit crützen gon sol, so bitten üch unsere herren, meister und rat, das uff diesen nehsten Sontag, so ir bredigen, das volck flissiglich ermanen, deste andehtlicher mit crützen zu gon, den almehtigen Got deste demütiglicher zu bitten umb gut wetter, die frucht im velde und alle ander notturft der cristenheit gnediglich zu versehen, als ir dann solicher der dürung und ander mercklicher ursachen halp wol wissen uff des andehtigst zu ercleren und das volck zu cristenlicher andaht desto ernstlicher zu reissen.* Strasbourg, Archives de la Ville et de l'Eurométropole de Strasbourg (AVES), Mandat et Réglements 1 MR 2, p. 115.

258 Strasbourg AVES, 1 MR 2, p. 118.

259 Signori, p. 318.

260 *Zum dritthen so wurth unser bann weder mit krytzen tragen des heiligen sacramenth begangen oder sunst anderen letanyen und gots gengen geereth noch gezireth oder mit lythen versehen destominder nit aller der kirchen brust und mangel gliche burde tragen das uns alles nit beselte? wü uns gemelter abgang oder versumung cristlicher ordenung nit an lib seel und gut schad breth als ir unser genedig herren und hoch verstendig uss gehorten ursachen zu behietung der frucht fur dunder hegel schne wasser und ander ungewyther erwegenn kunnen.* Jean Lebeau and Jean Marie Valentin, ed., 'La commune d'Ostwald au Magistrat de Strasbourg [1510]' in *L'Alsace au siècle de la Réforme: 1482-1621: Textes et Documents* (Nancy: Presses universitaires de Nancy, 1985), p. 88.

Should the attempt to shield fields, orchards, or crops from storms and other destructive weather events be a failure, one final measure remained to be taken: direct blessing of the storm clouds by an ordained priest.²⁶¹ These instructions from a fifteenth-century document held in the Strasbourg State Archive are particularly vivid: not in a shelter, but on the land where the blessing is desired, the celebrant is to begin by placing his right foot on the earth pointed against the storm and with his right thumb, marking three crosses under the earth in the name of the Father, the Son, and the Holy Ghost. After this, he should stand up and with his right hand, strike a blow against the storm and say that he commended it to almighty God, his dear mother, and all the saints.

Once the priest had done his part, the anonymous author included his vision of the spiritual process which would occur: the Blessed Virgin Mary would carry the request to her son, Christ, who sat in a corridor on a golden stool. Christ's response would be that the saints Luke, Mark, Matthew, and John were to command in his name that no bad weather should strike or burn anyone who called on the Holy Spirit for help. He would also promise to cause the thunder and hail to release themselves upon the earth with as little damage as his mother had borne under her chaste heart, in God's name. Back on earth, the priest and his

²⁶¹ *Ein seegen wider das wetter. - Wer das wetter segen wil, der sol den rechten fues vff die erde stellen gegen den wetter und soll mit dem rechten dumen drie creutz vnder den fues vff die erden machen jn dem nammen des vatters, des sunes vnd des heiligen geists. Vnd darnach sich vff richten vnd mit der rechten hant gegen den wetter slahen einen slag vnd sprechen: Das wetter entpfilche ich dem almechtigen Got vnd siner werten mueter vnd allen lieben heiligen. Es sas vnser lieber herre jn eynem flor vff sinem güldin stuele. Do kam vnser liebe frowe gegangen vnd sprach: Was sitzestu do, drut sun? Herre, heis das wetter wider keren durch diner bitter martel ere. Do sprach er: Fraw mueter, wer ist sant Lux, sant Marx, sant Mattheus vnd der licht herre sant Johanes? Heis es nemen jn die hant, heis es fueren in die verren lant, jn die wuesten oder jn ein wasser oder jn ein walt. Vnd wo man den heiligen geist nennet, daß do kein wetter slecht oder brennet, das gebüet der man, der dot vnd martel an dem heiligen crütz nam. Das sy war jn Gots nammen. Do rette Got zue der selb en stund vß sinem göttlichen munde: Frow mueter, so wil ich das wetter segen. Ich beswere dich hüte, Donner, ich beswere dich, hagel, by den vil heiligen drie nagel, die Got durch hende vnd durch fueße wurden geslagen, daß du dich nyder lassesst zue der erden, vnd brignest als wenig schaden, als die frucht brocht schaden, die vnser liebe frowe vnder jrem küschen hertzen getragen. Das sy war in Gots nammen. Vnd sol dann betten XV pater noster vnd XV ave maria vnd sol die statt, do man den segen sprichet, jors vff den fritag jn der oster wochen zween sester vol brotes armen lüten geben durch sant Bilgres willen, dem almechtigen Got zue lobe. Ouch sol man den segen vnder keine obedach sprechen, sondern wo man möcht vff geweiht erde den segen gesprochen, were das beste. Ouch wann man sicht die slossen vallen, so sol man, noch dem der segen gesprochen, drie oder vier oder funff slossen nemen vnd doe jn ein fuer werffen. Strassburg, Stadtarchiv, Serie V 136, 2. Papierhandschrift des 15. Jahrhunderts; see also Pflieger, 'Wettersegen und Wetterschutz', p. 266.*

community should pray fifteen Our Fathers, fifteen Ave Marias, and, for Saint Pelagius' sake, distribute two bushels of bread as alms on the Friday of Easter Week. If hailstones fell, after offering the blessing, a small handful of the hailstones should be collected and tossed in a fire.

The Catholic convention of apotropaic ceremonies such as bell-ringing, services and rogations, along with direct blessings when destructive events were imminent, were the spiritual means available to guard Alsatians against extreme weather events. That such means were practically accessible and employed is seen from the record of processions in Strasbourg and the Ostwald Council's request for a priest to enact them. Although, once again, it is important to avoid confusing practice with faith, the widespread demand for and participation in such events offers convincing evidence that the ceremonies were commonly accepted as reliable means of bringing the natural world into alignment with human needs. Since these methods were based on the same theological and natural philosophical view which were the foundation of Geiler's 1509 Lenten sermons, it stands to reason that Geiler's representation of a Godly environment was unexceptional for his time.

Conclusion

Conclusions can be drawn on several levels about the late medieval representation of nature in Strasbourg from this exposition of Johann Geiler's 1509 Lenten sermon cycle. Conceptual, theological, and ritual perspectives come together to provide clarity about the manner in which a popular orthodox preacher represented a Godly environment in a complex society and the high degree to which that representation was accepted as valid by his community. Widespread participation in particular social behaviour implies tacit acceptance of the assumptions upon which the behaviour is based; the resources deployed in organizing rogations and demand for their performance speak to the strength of the ideas

about nature communicated by Geiler within his society, even while such rituals were events which also articulated communal social and political hierarchies. While conceptual, theological, and ritual approaches to the question are entangled in practice, this section will first address each approach individually and, finally, offer a conclusion which integrates all three and demonstrates the manner in which Geiler's ideas about nature were connected to ritual practice in Strasbourg.

What can we notice about the conceptual structure of Geiler's representation of nature from these sermons late in his life? While conforming to Scripture in the broadest sense, the sermons of this learned Catholic preacher capture early sixteenth-century assumptions about the natural world which were based on centuries of elaboration in natural philosophy and theology. An example of these elaborations can be found in Geiler's expansion upon Genesis (see pp. 113-4) where he detailed the manner in which God creates and vivifies animals, the presence of His wisdom within each one (see pp. 116-7), or the role that wisdom plays in their behaviour (see pp. 117-8). While God was clearly supreme within Geiler's cosmology, Geiler expanded from this Biblical foundation to say that God placed his wisdom into every being, which provided the information and understanding each creature required in order to behave according to its designer's purpose. Creatures were represented as divinely-created material vessels containing not only life-energy, but also God's wisdom. Geiler told his audience that God's wisdom was in the hare, the eagle, and the bear, and implied it was also in the tree, the bee, the sheep, the wolf, as well as numerous other creatures. Like other elements of the natural world, the weather also could be perverted from its design by diabolic agents (see pp. 119-21), showing that Geiler included weather phenomena within his representation of a Godly environment.

Although God had created the environment, however, only his direct intervention in its operations could be recognized as miracles. Otherwise, and unless corrupted by the devil

or demons, the animals, plants, weather, earth, and other parts of nature simply fulfilled their divinely-designed function – even if this included inflicting destruction upon human beings, as in the attacks of wolves or hailstorms. Geiler's conceptualization of nature, then, had a degree of impartiality, whereby fortunate or unfortunate events of nature escaped spiritual and moral interpretation. Although mysterious, God's wisdom was presented as integrated into each individual creature and intended for the greater good of all things.

God's wisdom, in fact, was a unifying feature which ran throughout Geiler's concept of Creation, shared by all God's creatures except humanity. It was not the only unifying feature; depending on their proximity to the Creator, another commonality was that all creatures were vulnerable in greater or smaller degrees to being possessed by the devil or a demon. This vulnerability conceptually rendered creatures exposed to spiritually more potent beings both benevolent and malevolent.

While powerful spirits were the actors, though, human beings were portrayed as potential catalysts for action in a spiritual community which was represented by Geiler as operating in a strict hierarchy. Similar in structure to late medieval feudal society in western Germany,²⁶² in this spiritual hierarchy inferior beings (humans) chose a superior with whom to exchange pacts of obligation and protection (God or the devil). If the human was loyal to God, the pact was reliable and the sacraments could be relied upon to activate God's protection from danger. Geiler asserted this at several instances, and in that hierarchy, not only was humanity ranked below God, men and women were also inferior to his saints and angels, the devil and his demons, and the divinely established laws of nature. Engaging spiritual powers to act on one's behalf, whether maliciously or for protection against such malice, meant an active choice by a human to contact them and beg them for aid.

²⁶² For a comprehensive discussion of feudal relations in the western parts of late medieval Germany, including the Rhine area, see Gadi Algazi, 'Lords Ask, Peasants Answer: Making traditions in Late Medieval village assemblies', in *Between History and Histories: The Making of Silences and Commemorations*, eds. Gerald Sider and Gavin Smith, Anthropological Horizons Series (Toronto: University of Toronto Press, 1997), pp. 199-229.

Whether through rogations, exorcisms, and the ringing of bells which invoked God's power on their behalf, or through enacting unreliable sacraments to summon the devil, then, late medieval Catholics were told by Geiler and other accepted cultural authorities that there were ways for humans to exert agency over the natural environment. Having avenues conceptually available for humans to bring about desired conditions rendered the religious meaning of natural events uncertain, inviting questions of theodicy and justice which occupied the labour of theologians theoretically and, practically, invited orthodox and popular ritual intervention in the natural world.

Another conceptual aspect to Geiler's representation of the natural world was the contrast it allowed him between humans, for whom salvation was available, and non-humans, for whom it was not. That is, according to late medieval European cosmology, ants, demons, and the devil shared at least one common feature: they were not members of the Roman Catholic Church. Barring a dramatic reconciliation between God and His fallen angels, the insects and the diabolic alike were denied any possibility of attaining eternal salvation, the first due to their lack of immortal soul and the second because of their rebellion against God. Therefore, both groups were able to serve Geiler as an 'Other' against whom Christian standards were established and Christian behaviour measured.

Known in the medieval bestiary for their industriousness, prudence, and steadfastness in faith, Geiler told his audiences that ants were obedient to God and compliantly executed their design according to His wisdom in an orderly, hard-working fashion, and that they were a worthy model to emulate. However, demons and the devil were described as traitorously disobedient, perverting not only their own design but the design of other creatures, such as individual plants and animals, the earth, the sky, and the weather. Geiler upheld the former as a moral exemplar for humanity, and scorned the latter as disorderly bringers of chaos. Praiseworthy orderliness and contemptible disorderliness both reveal the

centrality of order itself to Geiler's representation of the divinely-created natural environment.

What can be known of God in light of Geiler's conceptual organization of nature? In other words, reading against the grain of his rhetoric, what theological views are we able to discern from the manner in which He relates to His creation as preached by Geiler? A central observation is that Geiler's God sat at the pinnacle of a spiritual community which was ranked according to power and ability. He closely resembles a feudal overlord, one who was idealized in terms of absolute power and command; a close relationship with Him provided protection from danger, while distance rendered one's relationship with the Lord vulnerable to co-optation by competitors. There are close parallels between the late medieval feudal social hierarchy in western Germany,²⁶³ the spiritual hierarchy asserted by Geiler, and the hierarchy of nature encapsulated in the concept of the Great Chain of Being, which ranks creatures in the order of their perceived proximity to God.

While it is impossible to claim that Geiler's concept of hierarchy in the natural world is the result of his preference for a strict social hierarchy (see pp. 169-70), it is equally impossible to deny the conceptual similarity between the static, ranked social order he advocated, and the divinely-ordained hierarchy he assumed as the unquestioned structure of the natural environment. It is also possible to speculate that in 1509, Geiler was attempting to promote social stability by using his influence to deliver a view of the natural world as intentionally and contentedly hierarchically ordered, particularly in light of the *Bundschuh* rebellions and the social tensions in Alsace which may have been obvious to the preacher.

A second theological point is that comprehension of God's natural order was provided through humanity's intellectual abilities. The view of the environment as rationally

263 Algazi, pp. 199-200.

ordered, and accessible to comprehension through the human capacity for rational thought, had, by 1509, a millennium-long anchor in Augustine of Hippo's *On the Trinity*. In it, the Bishop argued for a direct link between God, creation, human nature, and our ability to reason, which resulted in traces of God in the human process of reasoning.²⁶⁴ Using, as McGrath notes, essentially Aristotelian categories of causation,²⁶⁵ Thomas Aquinas expanded on this to postulate a fundamental divine 'presence' in the natural world as a consequence of the relationship between creator and created. In *Summa contra Gentiles*, he stated that meditation upon God's works enabled an admiration of God's wisdom and reflection upon it. Thusly, he reasoned, it was possible to infer God's wisdom from reflecting upon God's works.²⁶⁶ Geiler's description of God's wisdom as bestowed upon every creature was itself a logical expansion of Aquinas' assertion.

If, as the model of socioeconomic metabolism suggests, cultural representations of nature will find expression in social behaviour,²⁶⁷ communal rogations and exorcisms ought to be fruitful sites of inquiry into the late medieval Alsatian religious understanding of weather, and they do not disappoint. Both ceremonies were a functional operation of the conceptual hierarchy described above. They appealed to a superior rank's responsibilities to protect a vassal or subject, rogations as a prophylactic and exorcisms as a remedy. The source of danger was diabolic, and, hence, outside of the divine order designed and instilled in the natural world; prayers in both instances plead with the ultimate authority (God) to protect or re-establish the natural order as it was intended to be.

Based on Geiler's confidence that God will reliably honour a performance of a sacrament with the bestowal of grace, weather rogations and exorcisms were founded on communal

264 Alister E. McGrath, *Christian Theology: An Introduction*, 5th ed (Chichester: Wiley-Blackwell, 1993/2011), p. 162.

265 *Ibid.*, p. 159.

266 Thomas Aquinas, *Summa contra Gentiles*, II.ii. 3-4.

267 Catherine Bell, 'Constructing Ritual', *Readings in Ritual Studies*, ed. by Ronald Grimes (New Jersey: Prentice Hall, 1996), 21-33 (pp. 25-6).

confidence that engaging in ritually approved behaviour, such as rogations and exorcisms, with an attitude of faith and humility - *facere quod in se ist* - would enlist beneficial spiritual powers on their behalf. Conversely, Geiler's scorn for demon-summoning rituals was explicitly because they were not dependable: the devil was so estranged from order that he did not reliably honour the spiritual relationship which he himself had established when he provided summoning rituals to malicious humans. The devil was a poor choice as a spiritual liege lord. Geiler was probably aware of the accusation he was implicitly making against unreliable terrestrial lords, should they fail to honour their responsibilities.

At least with respect to their relationship with weather and the natural world, then (because rogations were conducted to protect against other natural disasters besides weather, and many of nature's threats other than bad weather provoked the cleansing power of an exorcism), late medieval Alsatians participated in a ritual world shaped by the perspective of the *via moderna*. There was an expectation of full communal participation, signalled by the mention of fines for on-looking idlers and the *Rat's* explicit request to preachers that they urge attendance; a stronger show of devotion by the community to the spiritual order exerted a more persuasive pressure on spiritual hierarchy, as it would upon the social hierarchy.

The keynotes offered by this case study of a late medieval religious Strasbourgeois view of nature appear to have been the concept of order and the relationships which supported an orderly environment. Threats from the natural world to humanity sprang from outside agents, so to speak, as the devil and his demons had rebelled against God's ordainments, and addressing those threats involved a plea to God, his angels, and / or the saints to nullify diabolic activity and re-establish God's orderly design. Reason was a valued tool in understanding this natural order; sixteenth-century rationality, however, included powerful spiritual agents with the capacity to affect nature. This case study shows the manner in

which nature itself - the geographical, biological, and atmospheric features which make up the natural environment - was represented by an orthodox Catholic preacher as a hierarchical society of divinely created material vessels, brought to life with a bolt of God's own energy, filled with His wisdom, and each with its own value in the *societatis rerum creatarum*.

To conclude this chapter, this study of *Die Emeis* contributes to dispelling Max Weber's portrait of late medieval Catholic theology as irrational and dominated by 'mysterious, incalculable forces' and magic (see Introduction, note 31), particularly in light of a seminal essay examining the relationship of rationality and magic by Joseph Agassi and Ian Charles Jarvie, 'The Problem of Rationality and Magic'.²⁶⁸ In it, the authors note that a person may act rationally, believe rationally, or both. If they act rationally upon the basis of their beliefs, such may be understood as rationality in a weak sense. If they act rationally upon the basis of rationally held beliefs, this may be understood as rationality in a strong sense. As Hanska notes, medieval people frequently displayed rationality in the strong sense in that they were willing to act rationally upon rationally held beliefs, particularly in relation to preventing disasters or alleviating their effects.²⁶⁹

Strong and weak rationality are mixed in Geiler's sermons, although weak rationality predominates. For example, his exposition on the seven causes of wolf attacks (see note 48) describe five rational motivations for a possible attack and two supernatural ones, his description of the causes of various dreams (see note 49) include material contexts and spiritual agents, and among his solutions to magically-induced storms is found legislation against human action alongside Scripturally-supported ritual behaviour. While he consistently spoke rationally upon the basis of his beliefs, and consistently advised rational

268 Ian Charles Jarvie and Joseph Agassi, 'The Problem of Rationality and Magic', in *Rationality*, ed. Bryan Wilson (New York: Harper & Row, 1970), pp. 173-93.

269 Hanska, p. 46.

behaviour on those same beliefs, only occasionally were those rationally-held beliefs. For the most part, and not unexpectedly by an orthodox preacher, the beliefs propounded from the pulpit were based on Geiler's Catholic faith. By the late fifteenth and early sixteenth centuries, elaborate philosophical and theological structures had developed within the faith which could explain events, processes, and forces of the natural environment. Geiler's education and position, as well as cultural expectations of him as a Doctor of Theology, among other factors, gave him the opportunity to represent these understandings of nature to his audience, and he did not fail.

Weak rationality, however, is not the absence of rationality altogether. Its presence in the 1509 Lenten sermons of Johann Geiler von Kaysersberg contributes to the growing discreditation of Weber's 'disenchantment of the world' hypothesis by showing the existence of rational thought and behaviour in religious preaching before the Protestant Reformation.

CHAPTER THREE: THE COMMON MAN AND THE NATURAL WORLD FROM 1509 TO 1525 (CASE STUDY NO. 2)

Introduction

Religious events in the cultural sphere of causation and weather events in the natural sphere of causation both could be characterized as particularly turbulent from 1509 to 1525. It was a moment in history when the common man bestirred himself and propelled events forward; the focus of this research, then, turns to him. Although it was a shout of protest at the time, the voice of the peasant has become thin and attenuated over the centuries, due to the sad paucity of material from this group which survived for posterity;¹ identifying commonly-held views and attitudes therefore needs to rely on a variety of sources. Three sources will be introduced in chronological order of their publication in Alsace: Leonhard Reynmann's *Wetter Büchlin*, Clemens Ziegler's *Ein Fast Schon Büchlin*, and Article IV of the *XII Articles*. Following their introduction, this chapter works towards establishing a peasant representation of the natural environment, offers arguments for a distinctly peasant culture in early sixteenth-century Alsace and southern Germany, and summarizes social events incorporating the weather, efforts to establish a new social order founded in that culture, and resistance to the same.

As the case with Geiler, the primary purpose of these tracts was not the communication of a religious representation of nature; the first, Leonhard Reynmann's *Wetter Büchlin*, centralized weather but excluded religious interpretations of those phenomena or the greater natural world, the second, from Clemens Ziegler, hoped to inspire within his peers an acceptance of his interpretation of the Eucharist, and Article IV, the third, was one

1 Georges Bischoff estimates that perhaps 10% of the written material they produced from 1517 to 1525 remains. Bischoff, p. 25.

element of a platform of demands by rebels. Nevertheless, they may all contribute towards answering the research questions of this thesis through a reading which asks questions about the authors' ideas about the natural environment or the cultural stance that the author reflects; in other words, by reading against the text.

Leonhard Reynmann's *Wetter Büchlin*² is the earliest example of a meteorological text in the German language. Nineteen editions survive, of which the majority (fourteen) appeared from 1510 to 1525; there were approximately 8500 copies³ printed between 1505 and 1549 in several southern German cities.⁴ The little book is a thirteen-page collection of sayings and ideas which teach methods of foretelling the weather from observation of the sky and stars. It was printed in Strasbourg in 1516 by Matthew Hupfuff, who, as Master of one of the earliest print shops in the city, was located in the little stalls clustered around the base of the cathedral and nearby.⁵ Identified as a 'medium scale shop' by Marion Usher Chrisman,⁶ he appears to have been in operation from 1492 to 1522 and offered a wide

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- 2 Unfortunately, the surviving Strasbourg edition is held at Gießen, Germany, and is not of immediate access. A comparison of six editions from 1510 to 1530 shows one change of illustrators and only small textual differences among them; the Strasbourg edition was unlikely to include substantially new textual material. While not an ideal situation, this does permit the legitimate substitution of another edition for that published by Hupfuff. This research is based on the 1515 Augsburg edition, illustrated by Hans Burgkmair. It is held at the ETH-Bibliothek Zürich <<http://dx.doi.org/10.3931/e-rara-11222>> [accessed 7 June 2014]. Leonhard Reynmann, *Von warer erkanntnus dess wetters also das ain yeder er sey geleert oder ungeleert durch alle natürliche anzaigung die aenderung des wetters aigentlich und augenscheinlich wissen und erkennen mag. Getzogen und gegründt auß den regeln der hochberuembsten astrologen und dartzu durch die teglichen erfahrung (die ain maysterin ist aller kunst) bewert.* (Augsburg: Silvan Otmar, 1515). This title is too long to feature regularly in the main body of this thesis, so Reynmann's publication will be referred to as *Wetter Büchlin* (Little Book of the Weather).
 - 3 Monica Weyer and Christa Koch, 'Die Kunde vom Wetter - Meteorologie in den Anfängen', *Wetter: verhext - gedeutet - erforscht*, ed. by Landschaftsverband Westfalen-Lippe, Katalog zur gleichnamigen Wanderausstellung des LWL (Münster: Museumsamt für Westfalen, 2006), p. 39.
 - 4 A search in the Universal Short Title Catalogue shows editions remain which were published in Augsburg (1510 (two editions), 1511, 1512 (two editions), 1513 (two editions), 1514, 1515, 1530, 1538), Basel (1545), Dortmund (1549), Erfurt (1512), Leipzig (1526), München (1510, 1530), Nürnberg (1515, 1523 (two editions), Worms (1534, 1535), and Zwickau (1530); Universal Short Title Catalogue, University of St Andrews, <http://www.ustc.ac.uk/> [search terms: author - Reynmann, Leonhard; key terms - wetters; accessed 8 August 2014]. See also Leonhard. Reynman, 'Wetterbüchlein. Von wahrer Erkenntniß des Wetters', in *Neudrucke von Schriften und Karten über Meteorologie und Erdmagnetismus*, ed. Gustav Hellmann, nos. 1-15. Berlin: A. Asher & Co., 1893-1904. Reprinted in 4 volumes. Nendeln, Liechtenstein, Kraus Reprint, 3 vols., 1969.
 - 5 Miriam Usher Chrisman, *Lay Culture, Learned Culture: Books and Social Change in Strasbourg, 1480-1599* (New Haven and London: Yale University Press, 1982), p. 15.
 - 6 *Ibid.*, p. 7.

range of material from religious tracts in both Latin and German to cookbooks.⁷ Hupfuff's choice to print Reynmann's pamphlet is unsurprising, given its evident popularity.

Reynmann himself was based in Augsburg; very little is known about him, although his name indicates a potential personal or ancestral link to the Rhine, or, possibly, a link with fellow Augsburger Johann Rynmann, who is recognized as the first non-printing publisher. An astrologer by profession, Reynmann is known for his prognostication that the 1524 conjunction of Saturn and Jupiter in Pisces meant imminent conflict between the earthly and social classes.⁸ Although the *Wetter Büchlin* did not offer a religious perspective on the events it described, it was selected for inclusion in this study because its popularity and that of later similar publications (ie: *Bauernpraktik*, see note 30) indicate a wide interest in practical knowledge of the environment among those without access to university education and the philosophical and theological views of nature found therein. Verification that the pamphlet was read by peasants, its target audience, is impossible, but the usefulness of a method to forecast the weather to farmers is evident from the book's popularity, even while acknowledging its value to other people. Published in Strasbourg during the same year as the first edition of Geiler's *Die Emeis*, *Wetter Büchlin* offers an entirely different approach to weather and the natural world, one which in succeeding centuries eclipsed that of the cathedral preacher.

Clements Ziegler was a gardener from the suburbs of Strasbourg and the author of *Ein fast schon büchlin*,⁹ a pamphlet likely printed in Strasbourg during the early months of 1525 by

7 Miriam Usher Chrisman, *Bibliography of Strasbourg Imprints, 1480-1599* (New Haven and London: Yale University Press, 1982), pp. 404-5.

8 Martin Kjellgren, *Taming the Prophets: Astrology, Orthodoxy and the Word of God in Early Modern Sweden* (Lund: Sekel Bokförlag, 2011), p. 81.

9 Clemens Ziegler, *Ein fast schon büchlin in welche(n) yederman findet ein hellen und claren verstandt von dem leib und blüt Christi* (Strasbourg: Johanem Schwan (?), 1525). Ziegler is known to have published at least six printed pamphlets between 1524 and 1532, all but one before the end of 1525, and four handwritten pamphlets from 1532 to 1552. Rudolphe Peter, 'Clement Ziegler the Gardener: The Man and his Work', trans. by Cynthia Reimer and John Derkson, *The Mennonite Quarterly Review* 69 (1995), 421-451 (422-6). The following is based on this work and Martin Arnold, *Handwerker als theologische Schriftsteller: Studien zu Flugschriften der frühen Reformation (1523-1525)*, Göttinger theologische Arbeiten, XXXXII (Göttingen: Vandenhoeck & Ruprecht, 1990), pp. 106-44.

Johann Schwann. A former Franciscan, Schwann only operated his own press for the four years between 1522 and 1525, and the titles of his twenty-three publications - all on religious topics - show a clear leaning towards radical perspectives.¹⁰ Chrisman assumes he operated a one-man shop¹¹ until his 1524 marriage to Margarethe Prüss. She was a widow, as well as being the daughter and heir of Johann Prüss, founder of the printshop *Zum Thiergarten* (Near the Animal Garden).¹² Despite her knowledge of printing, guild rules had prevented the widow from 'the right to exercise a trade'; with what appears to be focused determination on maintaining control over the presses she inherited, Margarethe married three qualified members of the guild, each known for their radical religious views.¹³ Following a drop in production from eighteen publications (1524) to three (1525), it is likely that Schwann integrated his smaller business into that of his new wife. Schwann was the second of Margarethe's husbands, but only lived until 1526; following his death, the Prüss family press continued to produce radical material, although with the arrival of Margarethe's third husband, Balthasar Beck, other subjects were also included for publication.¹⁴

Clemens Ziegler was also married at the point where knowledge of him entered the historical record in 1522, which is through his signature on a lease with the monks for a plot of land in the Krutenau (an area southeast of the island of Strasbourg around the convent of Saint-Nicolas-aux-Ondes).¹⁵ His civil status was that of *Schultheißenbürger*, and perhaps he had been drawn to Straßburg through the presence of his brother, a tailor named Jörg. Clemens almost drowned in the floods of 1524, and interpreted his survival as having

10 Chrisman, *Bibliography of Strasbourg Imprints*, p. 417.

11 *Ibid.*, p. 7.

12 Chrisman, *Lay Culture, Learned Culture*, p. 16.

13 C. Arnold Snyder and Linda A. Huebert Hecht, ed., *Profiles of Anabaptist Women: Sixteenth Century Reforming Pioneers*, Studies in Women and Religion, III (Waterloo, ON: Wilfrid University Press for the Canadian Corporation for Studies in Religion, 1996), p. 259

14 Chrisman, *Bibliography of Strasbourg Imprints*, p. 397.

15 The register of leases of Saint-Nicolas-aux-Ones, in the City of Strasbourg Archives, K.N. fol. 218a, cited in Peter, p. 426.

been miraculously spared in order to publicly proclaim the Gospel.¹⁶ He may have participated in a riot of Krutenau gardeners and coopers on 8/18 February 1525, who smashed the main altar of Saint Stephen, their parish church, although documentary evidence of his participation is absent. He obtained the right of full citizenship on 18 December 1525,¹⁷ although the *stettmeister* had named him 'our citizen' (*unser burger*) on 25 February 1525, revealing his status as a 'mayoral citizen' (usually a poorer person, who had purchased citizenship at a lower fee, and with fewer rights). Zyeqler appears to have been an uneducated though literate man, indicated in that he quoted the Old Testament from a pre-Lutheran translation, the New Testament from Luther's 1522 translation (printed in Strasbourg before that year concluded); some of the gardener's later works may have been a response to Caspar Hedio's *Chronicle*, published in 1530.

Although not one of the military leaders of the rebellion, Zyeqler's pamphlets gain authority as an expression of views which were popular among the rural communities when it is understood that shortly after the publication of *Ein fast schon büchlin*, upon an invitation by members of the gardeners' guild there, he went to Obernai and Barr to preach the Gospel. There are records of Zyeqler preaching in meadows between Börsch and Saint Leonard, on the outskirts of Bernhardswiller, in the cemetery at Heiligenstein, and possibly at the Haart River; unrecorded events or vanished records likely hide several more sermons. The peasants around these towns at the foot of Mont Ste Odile were, on 3 March 1525, among the first to rise in Alsace; on 16 April, Zyeqler was chosen as one of three representatives of the peasants to negotiate with the council of Dorlisheim. When the Strasbourg gardeners joined the rebellion, several of them came to join this band and their fellow guildsman. While we lack knowledge of Zyeqler's movements from this date until his December admission to full citizenship in Strasbourg, a striking indication of his

16 George Huntston Williams, *The Radical Reformation* (Philadelphia: The Westminster Press, 1962), p. 245.

17 City of Strasbourg archives, Book of Citizenship, vol. 1, col. 568, cited in Peter, p. 426.

influence was the rallying cry and banner which inspired that band of peasants: they fought for 'Gospel, Christ, and Clemens Zyepler'. His occupation, his radical religious views, and his role in the Peasants' War unite to merit the inclusion of *Ein fast schon büchlin* in this chapter.

The final item to be introduced is not a single document, but are the demands for access to forests and waterways, as well as the right to hunt and fish in them, which were carried throughout Alsace and south-western Germany in the articles through which peasants repeatedly expressed their desires to the authorities. Similar demands were first made in Alsace during the 1513 *Bundschuh*, when the anonymous author was presumably among Joss Fritz' rebels. They are better known for their inclusion in the peasants' *XII Articles*, the list of demands developed by members of the Upper Swabian peasant army. Journeyman furrier Sebastian Lotzer and Christoph Schappeler, the evangelical pastor of St. Martin's church in Memmingen, summarized the list, gave it its general form, and supplemented it with supporting scriptural citations.¹⁸ These were quickly printed by some twenty printers in fifteen different locations,¹⁹ and, whether adopted in whole, in part, or amended, provided conceptual unity to a rebellion which spanned several regions from Alsace to west Saxony, Styria, and the Tyrol. The claims were justified through a religious frame in which the natural world was God's gift to all mankind. While economic, social, and political analyses of these demands are not mistaken,²⁰ including an analysis of their religious aspect contributes towards a cultural understanding of the peasant perception of the natural environment around them.

18 Michael G. Baylor, ed. and trans., *The Radical Reformation* (Cambridge: Cambridge University Press, 1991), p.231n1.

19 Bischoff, p. 164.

20 See, in particular, Peter Blickle, *The Revolution of 1525*, Chaps. 2 and 4.

3.a Three Peasant Representations of Nature

Sorting through the maelstrom of ideas swirling around Strasbourg and the Alsace from 1509 to 1525 for a peasant's religious view of nature is challenging, as it was not the primary focus of the debate.²¹ This first section of the chapter explores the three selections introduced above for a representation of nature which may be understood as indicative of that found within Alsatian peasant culture of the early sixteenth century.

Glimpses of a view which avoided moral or supernatural explanations for atmospheric conditions may be seen in Leonhard Reynmann's *Wetter Büchlin*, whose full title promised 'true knowledge of the weather, so that every man, whether he be learned or unlearned, may through all the natural signs, truly and evidently know and recognise the variations of the weather'.²² Dedicated to Count Wolfgang²³ and other noble readers, Reynmann's opening verses made a claim to greater soundness than peasant lore provides, as he had the time to observe the weather all day while they were reading the moon and labouring all day to meet the 'yoke of taxation'.²⁴ Following the introductory verses, the pamphlet divided into small chapters, each relating the significance of specific observable phenomena for upcoming weather events: the circles which can be seen around the sun, the moon, and other stars(8), the colours and lights of other stars (8), shooting stars (9), what can be known at the rising and setting of the sun (9), what can be known from the clouds (11), the occurrence of rainbows and what they mean (12), thunder and lightning (13), knowing the weather through the four quarters of the year (14), what can be known about the weather

21 Similar work has been undertaken on behalf of post-Conquest English peasantry; see Susan Kilby, 'A Different World? Reconstructing the Peasant Environment in Medieval Elton', *Medieval Settlement Research* 25 (2010), 72-7.

22 *Von warer erkanntnus dess wetters, also, das ain yeder, er sey geleert oder ungeleert, durch alle natürliche anzaigung die änderung des wetters aigentlich und augenscheinlich wissen vnd erkennen mag.* Reynman, title page.

23 Without further details provided, it is unclear to which Count Wolfgang the booklet is dedicated; most likely, it was Wolfgang von Fürstenberg (1465-1509), Captain and Governor of Alsace and Ortenau.

24 *Wie man an gar vil dingen mag / Sehen vnd kennen alle tag / Das wetter, liecht, schön oder nass / Warlich, gewisser, vnd vil bass / Dann paurn, nach dess Mons liessen, / Vnd sollts joch all paurn verdriessen, / So ist ir sagen meertails glogen, / Und der sich dran laßt wirdt betrogen.* Reynmann, p. 7. The following citations will be put directly in the text, with only the start page of each chapter provided.

on the new and full moons (15), opinions about winds from various signs (15), hail (16), judging the weather from fire (16), and judging the atmosphere from the moon (16).

Reynmann finished his pamphlet with two and a half pages of peasants' rules, once more in verse (16), and a table of contents (19).

An example of the attitude and approach taken in the pamphlet is found in the sixth chapter, where Reynmann offered his insights about thunder and lightning.²⁵ If, he wrote, thunder is heard in the winter (while the sun is in Capricorn²⁶ and Aquarius²⁷), or, as he asserts, from Saint Lucia's Day (13/23 December) to the tenth day of January²⁸, then the onset of spring and the entire year will be windier than normal. Likewise during the summer, when, if there should be more thunder than lightning, winds will arrive from the same direction as the thunder. But if the reverse is true – that there is more lightning than thunder – then the winds will come from the area of the lightning. If there is less thunder than lightning, wrote Reynmann, it meant that rain, thunder, and lightning would arrive despite clear skies. If the thunder happens at sunrise, then it will rain the following day; if the wind is from the north and there is early thunder, then wind and rain will arrive after noon.

In the context of a culture that we are led to understand was deeply shaped by religiosity, the absence of any spiritual mediation from the weather events described in Reynmann's *Wetter Büchlin* is a striking contrast to the representation of nature as asserted by Geiler. A 'Starmaster' appeared once in the introduction, but there is as much possibility that his

25 *Von dem Donnern vnd Blitzen. Wenn in den zeiten dess Winters, dieweil die Sonn im Stainbock vnd Wasserman ist, nemlich von Lucie biß auf den zehenden tag Januarii, donner gehört werden, so wirt der anfang dess Glentz vnd auch das gantz jar meer windig dann ain anders. Item wenn es im Sommer meer donnert dann blitzet, bedeüt wind von dem selben tail da es donnert. Werden aber meer blitzen gesehen dann donner gehürt, so wirt der wind von dem tail da die blitzen heer geen. Item wenn es weniger donnert dann blitzet, bedeüt regen mit schönem klarem hymel, unnd werden donner vnd blitzen, oder so es auß allen vier tailen geschicht. Merck, geschicht es allain von aufgang, so wirt es regnen den nechsten tag. Von Septentrion gibt es wind, Vnd wenn es früe donnert, bedeüt es winnd vnd regen von Mittag herkommend.* Reynmann, p. 13.

26 22 December / 1 January to 19/29 January.

27 20/30 January to 18/28 February.

28 This would be the twentieth day of January, according to the Gregorian calendar.

identity was Reynmann himself, rather than God; Guido Bonati, the thirteenth-century Italian astrologer, was introduced in the text as knowledgeable, but not as an object of veneration. The astrologer avoid claims of supernatural causes for storms or the human evocation of demonic assistance; the sun was described as being in a particular astrological quadrant of the sky, but the astrological signs were not ascribed causative powers for the occurrence of weather events. The peasants' rules, whether devised for the peasantry by Reynmann, or, despite his claim to the contrary, more likely gathered from peasant culture, did not include any references to supernatural entities, good or evil. Knowledge offered in the pamphlet presents itself as based on empirically observable phenomena, (ostensibly) accessible to any who have the time to look up at the sky.

The *Wetter Büchlin* was the first publication in the German language to focus exclusively on meteorology.²⁹ Snippets of weather lore were found in almanacs; much of Reynmann's work was eventually integrated alongside forecasting methods for crop yields and personal destinies into the even more successful *Bauernpraktik* ('Peasants' Practice'), which was second only to the Bible in volumes sold in Germany during the sixteenth century.³⁰ While clearly only at the beginning of accuracy in weather forecasting, practical advice such as this existed along with weather rogations and cloud exorcisms as a means of dealing with weather in the early 1500s.

Such a practical attitude towards the natural world was also displayed by Clemens Ziegler, in his *Ein Fast schon büchlin*.³¹ Ziegler's aim in writing the pamphlet was to articulate a cogent view of the Eucharist; his view was that Christ's two natures (human and divine) were connected during his earthly life, and that without melting together, they formed a fruitful communion. Ziegler believed, however, that what was true of Christ could become

29 Weyer and Koch, p. 39.

30 Ibid, p. 40.

31 See note 9.

true of any believer since the institution of the Last Supper, in that the true reception of the body of Christ did not depend on the words spoken by another, but solely upon the faith of the one who communes. While his thoughts on the Eucharist are of interest to further developments of radical and Evangelical dogma in Strasbourg, here it is important to notice the vivid presence of the natural world in the pamphlet. Like Geiler, although with an entirely different perspective, Zyeqler's exposition of a religious subject included a view of his concept of nature which may be perceived through the references, anecdotes, and setting of his teaching.

After asserting his identity as a genuine gardener,³² Zyeqler wrote that he found a peasant, one Peter Bauer, working in the field and that the conversation they enjoyed became the substance of his little book. The first forty-four pages consist of Zyeqler's exposition and justification of his understanding of the Eucharist; the following six pages are a dialogue, where Peter Bauer asks questions or searches for clarity about Zyeqler's ideas. The explicitly agricultural setting in which the dialogue occurs may have been Zyeqler's attempt to legitimize his views within the peasant community or may be the written record of an actual event which took place somewhere in an Alsatian field. While in pursuit of this research, I have not been able to confirm either possibility.

The peasants and their occupation as tillers of the earth and tenders of beasts appear in several small allusions and twice as an extended reference elaborating a particular point. The Bible is portrayed as the field where hidden treasure lays, and that it brings great fruit to men on earth.³³ Information about righteous behaviours is to be spread among the peasants without mention of other groups.³⁴ While explaining the role of God in the

32 *Weyter, so haben mir etliche brüder gesagt die von ferzem zü mir kommen sind, wie das man in vil stetten nit weiss was ein gartner sey, und nemlich zü Angspurg des halben ich hab angezeigt das ich ein bawers man binn der daz veld braucht, mit Züblen, Rüben, Rettisch, hanff vnnd der gleichen, wie dann ein yegkliche stat ire zünfft hatt.* Zyeqler, p. 8.

33 *Dann es ist warlich der acker, in dem der schatz verborgen ligt, von welchem wir hand. Matt.am.viii.Ca. dann warlich bringt es große frucht den menschen auff erdtreich...* Ibid., p. 11.

34 Ibid., p. 21.

Eucharistic process, Zyepler asserted that a not a single grain of wheat would bring fruit unless God had ordained it, nor would the first grain itself.³⁵ In responding to Peter Bauer's concern about the errors made by youth, Zyepler wrote that he was unable to tear out unbelief from each man's heart with a dung-fork.³⁶

Zyepler gave several reasons for his having undertaken to spread the Word of God, one of which he found in Deuteronomy 22:1.³⁷ He began by paraphrasing the passage, wherein God's law asked of the people of Moses to return straying oxen, cows, or sheep to their brothers. He then pointed out to Peter Bauer that since a man is much more important than a cow, so much more zealous everyone should be in leading a man to Christ. Zyepler acknowledged that recognizing his brother or sister as astray also meant that he was himself going astray, but asserted that he had now found the right 'field', or place to find spiritual nourishment. It therefore was suitable for his soul's salvation to show it to his brother and to observe what happened to him as a result.

Hints of the Great Chain of Being can be found in the passage, in the hierarchical distinction Zyepler made between men and fish. Of greater impact on the paragraph, though, is his use of domestic animals as the source domain of a lively metaphor about communal self-regulation of Christians. Including himself in this community, as someone

35 *Nement und essen das ist mein leib der für eüch geben würd, das ist so vil, als ob Christus hat gesprochen, das einig weissen korn bringt kein frucht, und das ertz mag auch nit kommen da hyn es got verordnet hat, es sey dann geteilt mit einer zerbrechung und auss theilung ein yedes an das ort, da hyn es von gott verordnet. Ibid., p. 47.*

36 *Warumb wilt du es anders machen ich habe doch allweg gehört, es folge vss den selben worten, das sye haben gessen den leib Christi mit dem fleisch vnd haben sein blüt getruncken, warumb wilt du es vns nit also lassen, ich antwort also, mein lieber. P.B. wilt du dich nit lassen berichten mit diser meiner gschrift, so lass die jünger gessen han fleisch, und blüt getruncken hab, wie sol ich dir thün, ich kan nit eim yeden den vnglauben mitt eim mist krogen vß dem herten reissen. Ibid., p. 52.*

37 *Nün spricht gott im gesatz durch Moysen zü dem volck von Israhel, wann du deins brüders ochs, rind oderschaff syhest irr geen, so soltu dich nit abwenden, sunder du solt es deim brüder wider zü fieren Deutero am. xxii. die weil ym dann also ist, wie vil meer ist dann der mensch besser dann ein fiech, vnd darumb also vil der mensch meer ist, dann ein fyech, so vil meer sol ich vnd ein yeder geflissen sein den menschen zü fyeren auff den rechten weg, auff das er kum zü vnserm brüder Christo, vnnd durch den verdynst Christi zü gott vnserm himelschen vatter, das ich aber hab erkant das mein brüder und schwester ir gont, das thüt das ich auch ir binn gangen. Nun aber hab ich die recht bann erfunden, so zimet mir by meiner seel seligkeit meinen bruder auch zü weisen und angesehen was mir darauß erfolgt. Ibid., p. 15. Deuteronomy 22:1 non videbis bovem fratris tui aut ovem errantem et praeteribis sed reduces fratri tuo.*

who had 'found the right field', he elaborated the concept of an egalitarian community, a metaphorical herd of Christians, where although temporary leaders may emerge as guides, all were ultimately equal. Also, Zyegler placed knowledge of beast herding in direct juxtaposition with Scripture, using both to illustrate a desired attitude. With this passage, the farmer's practical experience was established as central to knowledge of how a genuinely Christian person should behave in community.

In a passage about the distinction between the letter and the spirit of Christ, Zyegler discussed what may happen when the living spirit of Christ is accepted into one's heart.³⁸ Particularly relevant to this thesis, he wrote that such revelation may take place anywhere: chopping wood, mucking out a stable, washing the dishes, sweeping the house, going to the field, heading out to a meadow, or looking after the cattle in the field. Whenever such thoughts would be found, however the person may be occupied, then that person partakes in the body and blood of Christ – even if there is no priest, altar, nor any outward sign of the Eucharist.

According to Zyegler, performing domestic tasks or the chores of agriculture assumed a Godly hue when the spirit of Christ was present heartfelt; it was an introduction of holiness to an area of human endeavour hitherto the very definition of mundane, with its repeating round of daily and dirty chores. Once again, intimacy between Zyegler's understanding of a Godly peasant's activity and the natural world was notable; the very tasks which degraded the peasantry in Alsatian society, condemning them as crude, lowbred, or uncouth, here assumed a distinct value as an appropriate setting for an expression of faith, in obedience to God. By locating a sacramental experience in this agricultural setting, Zyegler implicitly rendered the farm into a sacred place and nodded towards a view of farming as holy work.

38 *Wo dann solchs geschicht in des menschen hertz, der mensch der sye dann wo er wöl. Er hawe holtz oder mist ein stall. Er wesch die schüsseln oder feg das hauß. Er far zû acker, oder meg auff der matten, ja wann er schon des viechs auff dem feld hütet, wann solche gedanken in ym erfunden werden, wie hye angezeigt seind, so niisset der mensch gewißlich den leib und das blüt Christi, und ob schon kein priester kein altar, noch kein eüsserlich zeichen nimer da ist. Zyegler, p. 32.*

The final source to be explored for an understanding of the peasant view of nature is not found in a single document, but in the many versions of the *XII Articles* which spread through southern Germany and Alsace after their March 1525 composition by rebels in Swabia.³⁹ The list of twelve items can be understood as something of an 'economic-political platform' in which the demands included were those upon which the rebels could find agreement.⁴⁰ With all religious or Biblical references removed, the skeleton of the *XII Articles* composed in Memmingen is as follows:

1. that each community should have the power and authority to elect and appoint its own pastor;
2. that the large tithe on grain should be administered by the church warden and pay for the pastor's salary, serve as a reserve for the poor, and contribute to defence costs, while the smaller tithes should be eradicated;
3. that serfdom should be eradicated;
4. that without adequate documentary proof of private ownership of streams, lakes, or ponds, they should be administered by the community;
5. that without adequate documentary proof of private ownership of forests and woodlands they should be administered by the community;
6. that relief from labour for the lords must be attained;
7. that there should be no new demands for labour from the lords;
8. that there should be fairly established rents on leases;
9. that there should be consistency in matters of justice and law;

³⁹ For a comprehensive exposition of all the articles, See Görg K. Hasselhoff and David von Mayenburg, ed., *Die Zwölf Artikel von 1525 und das "Göttliche Recht" der Bauern - rechtshistorische und theologische Dimension*, Studien des Bonner Zentrums für Religion und Gesellschaft, 8 (Würzburg: Ergon, 2012), as well as Chapters 2 and 3 of Blickle, *The Revolution of 1525*.

⁴⁰ Bischoff, p. 165.

10. that without adequate documentary proof of private ownership of meadows and fields, that they should be restored to community administration;
11. that all death taxes should be abolished; and
12. that amendments to the demands should be argued on the basis of Scripture.⁴¹

Not every item was included by every group of peasants confronting their overlords. The articles, for example, which were presented before the *Rat* of Strasbourg by the Neubourg peasant band (who based them on those of the Altorf band) excluded nos. 7, 8, and 10,⁴² while those brought to the negotiating table by the rebels of the Sundgau had increased to twenty-four (demands regarding the waters, forests, and pastures remained and were supplemented with specific items such as the eradication of the tax for clearing communal lands, expulsion of Jews, and dissolution of the convents).⁴³

To strip the articles down to their skeleton, however, is to remove the conceptual framework of the people who composed them. Using Articles 4, 5, 8, and 10 as his basis, a too-brief exploration of the convergence of practical legal reasoning and utopian theological thinking in the context of the early sixteenth-century legal debate about the agricultural order was recently made by David von Mayenburg.⁴⁴ Von Mayerburg perceives the claims as a legal text consisting of demands made in good faith by a group of people with basic faith in written law and the standard procedure for resolving agrarian conflict, reflected in the standard legal terms found through the four articles. For example, acknowledging his debt to Hermann Heimpel's 1964 discussion of fishing and the Peasants' War, Von Mayenburg discusses the importance of flowing water (as opposed to still water)

41 Summarized from Blickle's translation; Blickle, *The Revolution of 1525*, pp. 195-200.

42 Bischoff, p. 165.

43 Ibid., pp. 214-5.

44 David von Mayenburg, 'Bäuerliche Beschwerden als Rechtstexte: Die Artikel der oberdeutschen Bauern zur Agrarrechtsordnung (Art. 4, 5, 8 und 10),' in *Die Zwölf Artikel von 1525 und das "Göttliche Recht" der Bauern -rechtshistorische und theologische Dimensionen*, ed., Görgo K. Hasselhoff and David von Mayenburg (Würzburg: Ergon-Verlag, 2012), pp. 99-130.

in demarcations between public and private bodies of water north of the Alps. Free access to the fish living in flowing waters, moreover, was traditionally enjoyed by the community, as mentioned in the thirteenth-century codification of German customary law, the *Sachsenspiegel*. He judges that the peasants were concerned not with the expropriation of waters or lands for private fishing and hunting grounds, but only about access to fishing in public flowing waters.

With respect to the Scriptural framework of the Articles, Von Mayenburg notes that deriving an argument from divine law, particularly Genesis, was widely used in legal texts until the early modern period. It was not, he says, only an invention of the peasants and points again to the *Sachsenspiegel* for demonstration, as well as to the *Reformatio Sigismundi*, a German-language document from the 1439 Council of Basel concerned with efforts to reform the Holy Roman Empire. Von Mayenburg asserts that the legal goals of the peasants were the core conceptual drivers of the Articles. Further, in summing up his arguments, he concludes that the Bible was not exploited in the *XII Articles* with fundamentalist intentions, but rather, moderated demands for changes in existing agricultural law, even while it contributed to furthering the goals of reform-minded lawyers.

The economic and legal agenda of the *XII Articles* are not in dispute here. However, any given text may serve a variety of purposes and querying the religious framework within which they were couched focuses attention on the values and perceptions through which the peasants justified their demands for access to natural resources and on the basis of which they sought a common understanding with social superiors. Article Four provides a clear articulation of the rebels' assumptions about the relationship of God and the natural environment, and the appropriate relationship of human beings to both.⁴⁵

45 *Zum vierten ist bißher jm brauch gewesen, daß kayn armer man nit gewalt gehabt hatt, das willpret, gefigel oder fisch jn fliessenden wasser nit zu(o) fachen zu(o) gelassen werden, welchs vns gantz*

Impressions of the rebels' views on a properly Christian relationship to the natural environment can be found in the first and third sentences, where the prevention of commoners from watching wild game, wildfowl, or fish from the running waters is interpreted as improper, unbrotherly, selfish, and contrary to God's Word. With a direct appeal to Scripture, the authors reminded readers of the position man occupied with respect to the rest of creation, which is to say, dominant over all animals, birds and fish. With this, the rebels asserted themselves as members of the Christian community with the inherent right to access God's natural bounty. However, an inherent right to hunt, to hawk, to fowl, and to fish as desired was also held by the elite and was an important signifier of their identity as nobility.

A specifically peasant perspective is found in the second sentence, which described their plight as being obliged to suffer in silence while beasts gobble up the crops which God gave for man's use because, in some places, the rulers protect the game and this offends both God and neighbour. There are several points of interest about this comment; firstly, that the authors present crops as given by God for man's use. Agricultural goods require time, attention, and labour to produce, and yet, this view of them conceals the human effort involved to focus on the divine act. By doing so, it establishes farming as an activity which draws one into relationship with God, and, once again, nods to the notion that the successful farmer is doing the work God intended for the Christian man. This is supported by the second point of interest in the statement, which is that God is offended when the

vnzymlich vnd vnbru(e)derlich dunckt, sunder aigennützig vnd dem wort gotz nit gemeß sein. Auch in etlichen ortern die oberkait vns das gewild zu(o) trutz vnd mechtigem schaden haben, wil vns das vnser (so got dem menschen zu(o) nutz wachsen hat lassen) die vnuernüfftigen thyer zu(o) vnutz verpretzen mu(e)twiliglich (leyden mu(e)ssen) dar zu(o) stillschweigen, das wider gott vnd dem nechsten ist, Wann als gott der herr den menschen erschu(o)ff, hat er jm gewalt geben vber alle thier, vber den fogel im lufft vnd vber den fisch jm wasser. Darumb ist vnser begeren, wann ainer wasser hette, das ers mit gnu(o)gsamer schriff beweysen mag, das man das wasser vnwyssenlych also erkaufft hette, begeren wir jms nit mit gewalt zu(o) nemen. Sunder man mu(e)st ain christlich eynsehen darynnen haben von wegen bru(o)derlicher lieb, aber wer nit gnu(e)gsam anzaigen darumb kann thon, solß ainer gemayn zymlicher weyß mittailen. Zwölf Artikel und Bundesordnung der Bauern Flugschrift "An die versamlung zymlicher pawerschafft", Memmingen City Archives, Series A, No. 2 materials for Memminger city history, Series A No. 2, 2000. <<http://stadtarchiv.memmingen.de/918.html>> [accessed 22 June 2015]

dumb beasts gobble up the crops. An offence is a transgression of the desired order, and for the peasants to consider the predations of wild animals on their crops as an offence to God is to consider the creation of that crop as divinely ordained, and implies, yet again, that the work that went into its creation is also desired by God. The disaster of a ruined harvest from wild animal predation on a single farm could, if the familial resources were limited, ripple out to put strains on the surrounding community as the need for charity increased. The third point of interest, then, identifies gobbling beasts as an offence against neighbours, whose Christian love of their brothers (and, implicitly, individual contributions to a communal fund for poor relief) would be tried if crops were destroyed. The demand in the Fourth Article for the peasants to hunt is not simply for legitimate access to game, but is framed in a manner which shows their belief that farming was divinely-ordained work, that God desired them to succeed in it, and that its failure was a threat to the stability of a Godly community. It is unlikely that the landowners would have appreciated the implication that their protection of game animals set them outside the Godly order.

It should also be noted that the *XII Articles* were introduced with passages establishing their justification through Scripture, and attention is drawn to the first demand, that each community have the right to elect, appoint, or dismiss its own pastor. It is fair to suggest that the authors understood the economic aspects of each demand as the means to an essentially religious goal: the establishment of a Christian community on earth, whose inhabitants would order themselves in an economically egalitarian manner before God. It was on behalf of the essentially religious righteousness of these demands which thousands of men risked (and lost) their lives.

Impressions of a radical religious representation of nature may be found by reading against the text of the last two selections, as well as, with the first text, a view of the appropriate Christian relationship to the environment. In essence, a Godly environment was depicted as

that which which could be understood as 'colonized nature' (see pp. 32-4, incl. Illustration 3); extending that environment through activities which further colonization, such as farming, was portrayed as righteous behaviour and, when done with heartfelt devotion to Christ, assumed sacred dimensions. Once the degree of religious virtue in the human interaction with nature was portrayed as being significantly determined by one's inner disposition, rather than the degree to which one humbled oneself before God in supplication for mercy, it may be suggested that practical knowledge of nature (such as that provided in the *Wetter Büchlin*) eclipsed ritual supplication as a popular means of understanding and coping with challenges from the natural sphere of causation.

3.b Peasant Culture in Alsace

It would be easy when conducting scholarship on the early Reformation to focus on events which led to the adoption of Evangelical doctrine by political leaders, eliding the conflicts and compromises with other visions of reform which contributed to its final form.⁴⁶

Although Luther's publications denying any relevance of the Word of God for real social conditions⁴⁷ and placing Evangelical reform in a positive relationship with civil authority⁴⁸ were quickly printed in Strasbourg, it is nonetheless clear from what original peasant sources remain that for most (if not all) who participated in the *Bundschuh* rebellions and the Peasants' War of 1525, the Gospel was a central means of conceptualizing and organizing their defiance of the late medieval social order. Important contrasts such as these point to disparate meanings ascribed to the central text in question - the Bible - and indicate the presence of competing views of the world: different cultures. That people who held opposing senses of Christian righteousness were each fervently committed to creating

46 For an elaboration of this view, see Chrisman, *Lay Culture, Learned Culture*, pp. 167-9.

47 Martin Luther, *Teütscher Adel. An den Christe[n]lichen Adel teütscher Nation: von des Christenlichen stands besserung* (Strasbourg: Martin Flasch, 1520).

48 Martin Luther, *Von weltlicher Oberkeit wie weit mann yhr gehorsam schuldig sey* (Strasbourg: Wolfgang Köpfel, 1523).

or maintaining their understanding of a Godly community is obvious. Perhaps rather than Miriam Usher Chrisman's distinction between lay culture and learned culture, which was based on her linguistic analysis of the pool of publications in Strasbourg, a useful distinction may be made here between elite culture and peasant culture. Such a distinction would be based on the differences between those who, like Geiler, found righteousness in the existing hierarchically-ordered community and those who sought it in a different type of community organization. This section explores the case for a particularly peasant culture, one within which such representations of nature as articulated in the previous section would be commonly accepted.

Building on Peter Blickle's insightful work, Georges Bischoff offers a nuanced understanding of such an early sixteenth-century peasant culture, one which incorporates their political goals and religious views.⁴⁹ While acknowledging the economic nature of the demands issued by the *Bundschuh* rebels, when assessing them in their social and cultural contexts Bischoff sets aside determinist arguments from both Marxist and non-Marxist historians. He convincingly writes that the rebels were not regressively seeking a return to ancient custom, but, rather, a progressive solution to problems which would establish a fundamental equality among all the members of society. He warns explicitly against mistaking a lack of agency by peasants for the absence of a global vision,⁵⁰ and asserts that the rebels were not located at the margins of an elite-driven evolution of society and politics.⁵¹ Along with many similar regional outbreaks which did not adopt the *Bundschuh* banner, such as the 1514 uprising in Rouffach (15 km southwest of Colmar), known as the *Butzenkrieg*,⁵² or the 'Poor Conrad' rebellion that same year in distant Württemberg, the 1525 uprising instead opened a door to widespread change.⁵³ Specifically, in explaining the

49 Bischoff, Ch. 12; the next few paragraphs rely on his analysis.

50 Ibid., p. 296.

51 Ibid., p. 113.

52 Scott, *Town, Country, and Regions*, Ch.3.

53 Bischoff, p. 115.

relationship between the emergence of Protestantism and the Peasants' War, Bischoff insists that Luther did not inspire a rebellion by the peasants; the revolution already in progress produced Martin Luther.⁵⁴

Bischoff's assertions are based on three arguments: first, that the view of the Alsatian peasantry as a gathering of small communities clutching at their customs and confined within seigniorial boundaries is to ignore the much more powerful factor of cultural unity among the peasantry and the artisanal classes in the cities. The vast majority of the population were peasants,⁵⁵ and they shared political opinions which only partly overlapped with those of their overlords, views which found expression in the demands accompanying the frequent uprisings throughout southern Germany. Another powerful element of that unity was their religious culture, the core of Bischoff's second argument, which developed through close proximity to the lower orders and priests who had the most to gain from opposing the Roman Babylon. Their visions for the future were egalitarian, fraternal, and Christian: proto-reform, in essence; Luther's theological seeds fell onto extraordinarily fertile ground. Bischoff's third argument is that the means to establish their vision of an ideal society was found in the infantry-man, who had gained a new respect on the battle field since the Swiss victories against Charles the Bold in 1476-7. Infantry-men were soldiers without the financial means or social status to become knights: armed peasants, in other words.

The grounds of Bischoff's insistence that peasant culture generated Luther and his religious insights are convincing, as the reformer's personal background is intimately associated with peasant culture.⁵⁶ His grandfather was a farmer in or around Eisleben, a small town

54 Ibid., p. 114.

55 Tom Scott accepts a definition of 'peasant' as someone who cultivates the land and is obliged to 'generate surpluses which they render as tribute to power-holders beyond their own ranks'. These legal and political constraints have no influence on participation in the marketplace, within which peasants may or may not participate depending on individual circumstances. Tom Scott, ed., *The Peasantries of Europe from the Fourteenth to the Eighteenth Centuries* (London and New York: Longman, 1998), pp. 1-3.

56 This brief biography of Martin Luther is indebted to Ulinka Rublack, *Reformation Europe* (Cambridge: Cambridge

northeast of Leipzig in eastern Germany. Martin's father, Hans, may have married above himself when marrying Margareta, but she remained the daughter of peasants - although wealthier than farm-born Hans. Martin was born in 1483, and Hans moved the small family a few kilometres away to Mansfeld a year later, purchasing a small copper mine in the area. With Leipzig over 110 km away from Mansfeld, at least a fifteen hour walk on today's roads, and Magdeburg the same distance away towards the north, there is no hesitation in identifying Mansfeld as nestled deep in the peasant culture of rural Germany. By the time Martin left Mansfeld for the Magdeburg school of the *Bruder für Gemeinsamen Leben* (religious communities which had developed from the end of the fourteenth century), his formative years would have been lived among his (admittedly upwardly mobile) peasant family and friends.

In asserting that peasants, loosely defined,⁵⁷ established the cultural parameters within which Luther had his religious epiphany, Bischoff is arguing most directly against Peter Blickle's conclusion that the Lutheran movement produced the Peasants' War, but also against older explanations of the Peasants' War as a rebellion against the early modern state or as part of an 'early bourgeois revolution' in Germany.⁵⁸ In lieu of these explanations, Bischoff places the slow development of a unified consciousness which took place over thirty years among the peasant class in Alsace.⁵⁹ Notwithstanding Luther's repudiation of social transformation as a central element in a Christian reform, and the agreement of the Strasbourg Evangelicals with his stance, the peasants and their sympathizers continued to

University Press, 2005), pp. 12-3, and 'Martin Luther's Childhood and Youth', <<http://www.luther.de/en/geburt.html>> [accessed 6 October 2014].

57 Bischoff notes the influential presence of non-peasants in the movement (Bischoff, pp. 91, 317). If one were to accept Chrisman's division of southwestern Germany into six classes (nobility, urban elite, learned civil servants and professionals, minor civil servants and technicians, common burghers and artisans, peasants), the movement is clearly based in the culture of the last, with growing representation from the others in descending order, excepting the nobility and urban elite (whose views are seen in laws and ordinances). Chrisman, *Conflicting Visions of Reform*, p. 6.

58 Such explanations may be found in Günther Franz, *Der deutsche Bauernkrieg*, 12th edition (Darmstadt: Wissenschaftliche Buchgesellschaft, 1984) or Adolf Laube, Max Steinmetz, and Günter Vogler, *Illustrierte Feschichte der deutschen frühbürgerlichen Revolution* (Berlin: Dietz, 1974).

59 Assuming the appearance of the *Bundschuh* rebellions to be associated with the onset of Alsatian peasant culture may be a false correlation (said culture is likely to be much older), but that is a question for another thesis.

develop their view of Scripture parallel to developments in Evangelical theology and doctrine. The peasant viewpoint was defined as radical, largely due to their insistence that the Gospel advocated social organization in a manner which legitimized the views and aspirations of the poorest in society.

The conceptual core of peasant political consciousness was found in the collective exercise of sovereignty - the community's ability to administer its own affairs, if you will - and the need for a contract between the governed and the governors.⁶⁰ The peasant vision of collective self-management upheld by the authority of a single overlord is seen in their 1525 attempt to establish a direct relationship between their self-governing communities and a single civic authority, the Holy Roman Emperor, thereby following the example of the Free Imperial Cities in by-passing intermediaries. Radical religious consciousness similarly attempted to by-pass spiritual intermediaries between the Christian community and God, regularly asserting the priesthood of all believers and legitimizing with popular attention the views of men such as Strasbourg physician and lay preacher Karsthans (John Maurer),⁶¹ botanist and theologian Otto Brunfels, or Clemens Zyepler. By 1524, in contrast, Evangelical preachers in Strasbourg were looking to the *Rat* to justify and uphold their religious supremacy, and a year later, negotiating on behalf of the magistrates with peasant rebels; they had successfully integrated themselves into the existing social order. The military defeat of the peasants discredited their religious views, but did not dispel them; for example, James M. Stayer considers the roots of Anabaptism to be in the pre-Peasants' War religious radicals.⁶²

Luther's 1517 challenges to Roman Catholic doctrine developed in a peasant culture where social change was the ambition of a majority, who, eight years later, would exert

60 Bischoff, p. 296.

61 For examples of Maurer's views, see Manfred Krebs and Jean Rott, eds., *Quellen zur Geschichte der Täufer*, Vol 7, *Elsass, I: Stadt Strassburg 1522-1532* (Gütersloh, 1959), Nos. 1-4.

62 James M. Stayer, 'The Radicalization of the Social Gospel of the Reformation, 1524-1527', in *The German Peasants' War and Anabaptist Community of Goods* (Montreal and Kingston: McGill - Queen's University Press, 1991), pp. 45-60.

themselves militarily in an attempt to impose it. The conceptual structure of an acknowledgement of a single temporal overlord in the person of the Holy Roman Emperor has a relationship with that of the acknowledgement of a single spiritual overlord in the person of a transcendent God: both remove a ranked hierarchy mediating between the common man and the source of authority in favour of an equality within the community which is maintained by a single powerful leader. Structural similarities between the ideal relationship with political authority as desired by the early sixteenth-century peasantry can be easily seen in the theological relationship Luther introduced between humanity and God, but such speculation is not the focus of this research project and other than noting the issue, it will not be pursued here. Moreover, since Evangelical reformers quickly moved away from a social vision which compromised their own rank within the hierarchy (if, indeed, it had ever been there at all), the primary role of Luther's theological contributions to the peasant rebellion was to advance and support the radical religious views of thinkers who were prepared to find within Scripture the views which would bolster social transformation.

The development of views such as the community of all believers or *Omnia sunt Communia* within peasant culture is an issue which deserves more research. Of relevance here, however, is the representation of nature within that culture, and it is considerably different to that expressed by Johann Geiler. For example, the manner in which peasant rebels articulated specific demands for access to streams, lakes, ponds, forests, woodlands, meadows, and fields in the *XII Articles* alludes to a religious view of the environment expressed in comments, anecdotes, and references in *Ein fast schon büchlin*. That is, some proponents of (radical) peasant religious culture suggest their representation of nature included views where Godliness may be found in practical work which extended the human colonization of nature and that direct interventions with the environment, such as

farm work, were considered appropriate opportunities to receive the presence of Christ in one's heart.

3.c Alsatian Society from 1509 to 1525

This section of the chapter outlines the tumultuous social events between Geiler's delivery of sermons which were later collected into *Die Emeis* and the conclusion of the 1525 German Peasant's War. Extreme weather events, particularly those of 1516 and 1517, sharply exacerbated existing tensions in Alsace, and may have contributed to the eagerness which greeted Luther's religious reforms.

Similar to the two earlier instances of peasant unrest in 1493 and 1502, poor harvests in 1511 increased general indebtedness, and combined with increasing economic pressure from political superiors, resulted in widespread hardship and sparked open rebellion in 1513.⁶³ Such pressure was not only exerted through increased rates of taxation; for example, in 1512, many people in the Bruch Valley, southeast of Strasbourg in the Vosges Mountains, were reported to have ignored their fields in favour of living on wildlife and fish from the woodlands and waterways. With a general order that every peasant in the valley who owned horses was to cultivate a field each of winter and summer grains, the diocesan administration attempted to restore the volume of their tithe by curtailing hunting and fishing as a means of subsistence, for the demands of sixteenth-century agriculture left little time for anything else.⁶⁴ Centred in the southern reaches of the Black Forest, conspirators aimed to capture Freiburg-am-Breisgau on the feast of Saint Martin 1513 (*11/21 November*). Some of the plotters acted precipitously, however, and once it was discovered, the rebellion was suppressed by the same coalition of territorial authorities as acted together in 1493 and 1502 (see p. 154).

63 Bischoff, pp. 106-7.

64 Rapp, p. 53.

The list of demands developed by the 1513 *Bundschuh* rebels shows an increasingly keen awareness of the precise remedies required for the difficulties facing the peasantry. Along with the intention of eradicating usury through interest-free loans, they aimed to limit prebendaries to a single post with a cap of 20 pounds per year of income; useless or objectionable religious houses were to be dissolved, and the superfluous wealth of those remaining would be confiscated for the benefit of community coffers. This list also saw the first introduction of Scriptural arguments for the stated goals, as well as the appearance of demands for the freedom to hunt and fish, and for free access to the forests and waterways.⁶⁵

While not gathered under the *Bundschuh* banner, armed rebellion broke out in Alsace again the following year, when fifteen hundred commoners from the countryside and the town of Rouffach rose together against the episcopal bailiff, the magistrat, and the town council.⁶⁶ Reflecting long-standing tensions, although triggered by particularly egregious behaviour on the part of the magistrat, the conflict was successfully mediated by representatives from Basel. Tensions also escalated that year in Ferrette, southeast of Basel in the Burgundian Gate, where the *landvogt* of Alsace, Wilhelm II von Rappoltstein, imposed his mediation to resolve the issue. As Tom Scott indicates in *Town, Country, and Regions in Reformation Germany*, however, the absence of ideological perspectives from these insurgents does not indicate the absence of an underlying dynamic reflected in their unfolding;⁶⁷ such a dynamic may be explained through the peasant culture asserted by Georges Bischoff, which will be explored in the next section.

Three years later, in 1517, the last iteration of the *Bundschuh* broke out from a much wider base than previous uprisings.⁶⁸ Conspirators were identified in over forty localities owing

65 Bischoff, p. 106-7.

66 Tom Scott, *Town, Country, and Regions in Reformation Germany* (Leiden: Brill, 2005), pp. 77-98.

67 *Ibid.*, p. 78.

68 Bischoff, pp. 113-7.

allegiance to a variety of ecclesiastical and secular landowners on both sides of the Rhine, including a cluster of villages around Strasbourg (Geispolsheim, La Wantzenau, Schiltigheim, Weyersheim, Geudertheim, Herrlisheim), in the country side around Hanau and Saverne, but particularly in the foothills of the Vosges between Molsheim and Barr, and throughout the Black Forest, albeit concentrated in the Kintzig Valley southeast of Strasbourg. The uprising was planned to unfold in stages; first on 8 September, timed to coincide with the high volume of traffic on the roads for a fair day at Saverne, with the capture of Rosheim as a target, then nearby Saverne and Obernai. A big fire on the crest of the Kniebis, about 50 km east of Strasbourg, on 26 September was to rally those on that side of the Rhine; on 4 October, a band of rebels was to assemble in the woods near Riedseltz with the intentions of capturing the Free Imperial City of Lauterbourg and nearby Hagenau. Alsatian authorities knew about the plans by mid-May, but tensions simmered until early September, when a priest confessing one of the rebels reported the names of individuals involved. Arrests and torture led to enough information to suppress the insurrection yet again. The rebels' plans, however, reveal a glimpse of the scope and range of discontent in Alsace; with their goals fixed on economic justice and a refusal to consider any authority except that of the Emperor and the Pope (noblemen and knights would be exiled or killed), dramatic changes were sought.

In 1518, one of the more unusual events took place: Strasbourg endured an outbreak of St. Vitus' Dance among the population.⁶⁹ On 14/24 July, Frau Troffea stepped out of her house and danced with rapid, rhythmic, and stiff motions for several hours. After collapsing with exhaustion, she enjoyed only a few hours of sleep before resuming her dance. After six days of this pattern, despite bloody feet, she was taken to a shrine to St. Vitus at Veitsburg, near Saverne, about 50 km away.⁷⁰ Her final fate is unknown, but her problem proved

69 John Waller, *The Dancing Plague: The Strange, True Story of an Extraordinary Illness* (Naperville: Source Books, 2009)

70 Waller, p. 75.

contagious: within days, over thirty people had taken to the streets to dance and within a month, up to four hundred people had caught the 'disease'. Several perished before the last week of August (first and second weeks of September by the Georgian calendar) by dancing themselves to death, at which point the XXI ordered all the dancers to be carted to the shrine, where they were given small crosses and red shoes, and a mass was performed.⁷¹ A few more people succumbed after this mass removal, but as the 1518 harvest began and was evidently successful, the 'dancing plague' disappeared from the area.

After the initial suggestions of medical practitioners inflamed the situation, Strasbourg's XXI demonstrably accepted a spiritual understanding of the problem. Historian of medicine John Waller, however, understands this outbreak as an example of a hysterical reaction to unrelenting and severe stress located in a specific cultural context, a catharsis of misery, suggestion, and belief.⁷² He describes the dancers as rendered vulnerable to unexpected and unsought altered states of consciousness or spontaneous trance through malnutrition and high levels of psychological distress, in a culture where individual saints would curse humans with specific maladies as a sign of their wrath. Waller specifically attributes the harvest failures of 1516 and 1517 and the ensuing winter famines as primary causes for the outbreak, along with the stress caused by the spiritual consequence of defaulting on loans (excommunication) and widespread dread that personal corruption of those responsible for mediating with the spiritual world rendered the sacraments useless.⁷³

It is impossible to know when rumours or foreign printed material about Luther and his challenge to the Roman Catholic Church began to arrive in Strasbourg. In 1519, however, four of his books were printed on the city's presses (one theological tract and three sermon collections),⁷⁴ and in 1520, printing of his treatises and sermons began in earnest.⁷⁵ Isolated

71 Wencker, p. 148, no. 3007.

72 Waller, p 205.

73 Ibid., pp. 59-67.

74 Chrisman, *Bibliography of Strasbourg*, p. 285; Chrisman, *Strasbourg and the Reform*, p. 301.

75 Chrisman, *Strasbourg and the Reform*, p. 98.

glimpses of the earliest preachers formally to share the Pure Word of God according to Luther are available: Master Peter Phillips von Rumersberg in 1520, in L'Église de Saint Pierre-le-Vieux, and Tilman von Lyn, reader at the Carmelite cloister in 1521, were both dismissed from their posts by the Bishop of Strasbourg for their efforts.⁷⁶ Successful introduction of the Pure Gospel was only made in 1521 by Matthäus Zell, the popular preacher prominently placed in the *Liebfrauenmünster* chapel of Sankt Laurentius.⁷⁷ The population's eager response to the topic generated a request for him to occupy Geiler's stone pulpit, but the Chapter refused, inspiring the erection of a portable wooden pulpit which was assembled in the cathedral before each of Zell's sermons, then disassembled and carried home for protection. Zell stood firm in his conviction, and within months of Martin Bucer's spring 1523 arrival, inspired Wolfgang Capito to join him. Capito, the author of the third case study in this research project, was a Doctor of Theology who had recently arrived from the court of the Archbishop of Mainz to occupy the post of provost at St. Thomas. Capito's conversion, that of the third most important clerical figure of the city,⁷⁸ was accompanied by that of Peter Wickgram, Geiler's nephew and Zell's replacement in the chapel of Sankt Laurentius, among many others.

From here, the reform movement advanced rapidly in Strasbourg and has served as a worthy subject for many scholars.⁷⁹ Up to five interpretations of Christian doctrine vied for popularity in the city: conservative (Catholic), humanist, evangelical, radical (proto-Anabaptist), and spiritualist. Detailing their several overlapping perspectives about ritual behaviour, pedagogy, and pastoral care could but contribute to confusion;⁸⁰ in essence,

76 Ibid., pp. 99.

77 To distinguish the chapel inside the church from the parish in the city, both named after Saint Lawrence, the chapel will be referred to in High Middle German, while the parish will be referred to in French.

78 Chrisman, *Strasbourg and the Reform*, p. 98.

79 For example, as well as Chrisman's volume, *Strasbourg and the Reform*, see Aubray, *The People's Reformation*; Brady, *Ruling Class, Regime, and Reformation*; Miriam Usher Chrisman, *Conflicting Visions of Reform: German Lay Propaganda Pamphlets, 1519- 530* (New Jersey: Humanities Press, 1996); David Bagchi, 'Germany and the Lutheran Reformation', in *The European Reformations*, ed. by Alec Ryrie, Palgrave Advances (Basingstoke: Palgrave MacMillan, 2006), pp. 13-35.

80 Aubray, p. 38.

divergent views about the appropriate relationship of clergy to laity, the standards and enforcement of morality, and the definition and policing of orthodoxy distinguished them.⁸¹ It is beyond the remit of this research to explore doctrinal differences in detail, or to itemize individual events of the Reformation's progress; a salient point to bring to attention, however, is the repeated failure of those in authority to act decisively against the reformers. For example, Zell continued to preach in the cathedral's nave because tensions among the members of the Cathedral Chapter dissuaded them from acting together in cooperation with the Bishop of Strasbourg's intention to dismiss him.⁸² Early in 1524, the *Rat* was intimidated by the intensity of popular acclaim the man enjoyed; focused on keeping the peace (as well as their own leadership positions), they decided to shelter and protect him by allowing him to continue in the Cathedral nave.⁸³ Although the Bishop requested it, the same municipal body refused to exile Bucer because he was the son of a citizen and enjoyed right of sanctuary.⁸⁴ Less than a year after his arrival, in February 1524, he was chosen by the parishioners of Ste. Aurelie as their preacher.⁸⁵ In another example, after Peter Wickgram, occupant of the chapel of Sankt Laurentius, and his successor, Symphorian Altbiesser, were both evicted for preaching the reformers' Gospel, Caspar Hedio preached there in a surprising void of further disciplinary action. In 1523, the parishioners of Saint André refused to pay the tithes; Hedio preached two sermons in the cathedral arguing against the practice from a rightly-reasoned Reform perspective, effectively blessing their stance. This absence of authoritative discipline from those occupying positions of power is noteworthy because it created an opportunity for alternative interpretations of the central text to flourish.

By the spring of 1524, five parishes of the nine in Strasbourg had chosen to take

81 Ibid., p. 39.

82 Chrisman, *Strasbourg and the Reform*, p. 101.

83 Brant, p. 264.

84 Chrisman, *Strasbourg and the Reform*, p. 108.

85 Ibid., p. 112.

evangelical preachers in direct opposition to the will of church officials: Sainte Aurelie, Saint-Pierre-le-Jeune, Saint Stephan, Saint Martin and Saint Laurent. The people who lived there were mostly artisans, labourers, gardeners, or other poor folk - the urban commoner, in effect. To evade legal consequences, as appointing preachers was the right of the Catholic Church (whether Bishop or Chapter), parishioners from these parishes petitioned the *Rat* to administer their benefices.⁸⁶ This request meant an unprecedented transfer of power to civil authorities, and in an exceptional turn of their decision-making process, the *Rat* consulted the full *Schöffen*, the 300 powerful guild leaders who sent representatives to Council, for a vote on the petition. On August 24, 1524, the latter voted that the Magistrat of the city should indeed be responsible for the appointment of parish priests, demonstrating the wide foundation of support for the Evangelical preachers in the city.

During this phase of the Reform in Strasbourg, then, traditional ecclesiastical authority proved hollow and civil authority demonstrated itself surprisingly sensitive to the will of the common man during the process of (partially) taking over the mandate of the Catholic hierarchy. Outside the city walls, however, preparations for rebellion were more in evidence than negotiated resolutions. Many other scholars have devoted their attention to the Peasants' War, though, and it is not necessary to enter into the events and progress of this conflict here.⁸⁷ For now, it is enough to provide an overview which notes that the rebels throughout Germany failed to achieve their immediate goals; with three decisive battles at Saverne, Lupstein, and Scherwiller, the arrival of Duke Antoine of Lorraine to enact a self-proclaimed crusade against heretical peasants imposed an immediate return to the pre-rebellion status quo in Alsace from Colmar northwards, which included the restoration of

⁸⁶ Ibid., p. 115.

⁸⁷ For details of the rebellion in Alsace, there is no better source than Bischoff's *La Guerre des Paysans*; for the greater insurrection throughout southwestern Germany, see Peter Blickle, *From the Communal Reformation to the Revolution of the Common Man*, Studies in Medieval and Reformation Traditions, 65 (Leiden: Brill, 1998).

Catholic interpretative and temporal authority outside the walls of Strasbourg.⁸⁸ In the Sundgau, towards the southern end of the graben, the city of Basel sent representatives to mediate between the rebels and authorities; despite the respect indicated by the willingness of local civil authorities to enter into negotiations with the rebels, the final treaty was largely dictated by Archduke Ferdinand of Austria. Its severe terms included, as in northern Alsace, a return of the Catholic Church to supremacy in spiritual and temporal matters.⁸⁹ Repressio of the rebellion in the different communities of Alsace can be understood as having differences in scale but not in kind, and although the Alsatian peasant may have found inspiration in radical or Evangelical interpretations of the Bible, after the final defeat of the peasants in 1525, such views found air primarily within Strasbourg's city walls.⁹⁰

Conclusion

Despite their commitment to the goals they held, radically religious peasant rebels did not succeed in altering the hierarchy of relationships at the core of Alsatian society.

Nevertheless, their influence can be seen in at least three areas: the growth of Anabaptism, further development and consolidation of the earliest theological developments of Protestantism in Strasbourg, and the introduction of new religious views of the natural world into accepted ritual behaviour. The first two have been very well addressed by James M. Stayer and Amy Nelson Burnett; a discussion of the third, then, is warranted here.⁹¹

It is not difficult to find evidence for weather having caused stress upon Alsatian society, as, along with social inequality and other social conditions, foul weather played a significant role in causing the famines of 1515 (see p. 90), 1516 (see pp. 90-1), 1517 (see

88 Bischoff, Ch. 7 and p. 205.

89 Ibid., Ch. 8.

90 Ibid., p. 225.

91 See Stayer, *The German Peasants' War and Anabaptist Community of Goods*, and Amy Nelson Burnett, *Karlstadt and the Origins of the Eucharistic Controversy: A Study of the Circulation of Ideas*, Oxford Studies in Historical Theology (New York: OUP USA, 2011).

p. 91), and 1524 (see p. 92). In light of this, weather events can be included among the causes of increasing social turbulence leading up to the German Peasants' War, along with having contributed to motivating the 1525 rebellion itself. However, while events in the natural sphere of causation may exert stress upon the human / social biophysical structures, according to the model of socioeconomic metabolism, it is not possible to attribute transformations in the cultural representation of nature to such stresses. The model attributes this to the spontaneous nature of developments in the cultural sphere of causation, which may be responsive to events within the cultural sphere, within the natural environment, both, or neither. Documents produced by radical theologians and peasants point to a change in the religious representation of nature which was well underway by the third decade of the sixteenth century; for such views to have been considered unexceptional by members of the peasantry in such distant locations as the foothills of the Vosges mountains and Memmingen, in Upper Swabia, implies they were perspectives which had been comfortably assimilated into peasant culture by the end of 1524.

The strongest indication that the Catholic representation of nature lost interpretative authority in the early sixteenth century came with changes in religious programmes which attempt to exert an effect upon the natural environment (see Illustration 4). That is, Strasbourgeois simply stopped participating in communal rituals pleading with God for good weather. Successful rogations were held for protection against plague, war, and bad weather on 23 July/2 August 1511,⁹² for good weather and a successful harvest on 13/23 May 1517⁹³ and on 21 April/1 May 1519 for the upcoming Imperial election, peace and harmony in the realm, and the growth of field crops.⁹⁴ By 1524, however, the annual rogation on Saint Mark's Day (25 April/5 May) proved a humiliating exercise for the remaining devout Catholics: only a few people participated, while, at the same time, Hedio

92 L. Pflieger, 'Die Stadt- und Rats-Gottesdienste', p. 39.

93 Ibid., p. 40.

94 Ibid.

gathered a crowd for a homily inside the cathedral. Driving the point home, a listener locked the main passage into the building, forcing the rogation to re-enter through a side door.⁹⁵ An unnecessary ban was enacted against rogations by the *Rat* in 1529, when the mass was also forbidden public celebration. This refusal to participate in ritual rogations and sabotage of the same, however, may be as reasonably attributed to the Lutheran challenge to Catholicism as much as to radical religious views held by members of the peasantry and their urban peers.

For further evidence of the influence of peasant views of the natural world, the historian's attention must turn to publications which met the high demand for practical methods to anticipate, understand, and cope with challenges posed by the environment, including the heightened incidence of extreme weather events characteristic of the Spörer Minimum. Such examples as Leonhard Reynmann's best-selling *Wetter Büchlin*, and later, the anonymously-authored *Bauernpraktik*, serve to demonstrate this. Why would people from a period recognized for an upswelling of religious fervour turn away from the church when searching for the means to securing good weather? Although firm conclusions are not possible at this time, the repeated failure of ritual events on a culture under stress from precisely those circumstances the ritual is supposed to mitigate invites speculation. Did the rogations, exorcisms, architectural blessings, bell-ringing and endless admonishments to good behaviour from clerics suspected of spiritual impotency (due to their corruption⁹⁶) lead to scepticism about the Catholic representation of nature among a deeply stressed human population? Perhaps; the Dancing Plague of 1518 in Strasbourg indicates the degree of frustration and despair among the city's population, and may also explain the fervour with which conceptual innovations in the religious representation of nature were welcomed.

95 Stedel, p. 93.

96 See Thomas A. Brady, Jr., "'You Hate Us Priests'".

Audacious conclusions such as those, however, as well as the fears which could have accompanied them, may contribute to an understanding of the eagerness with which peasants rejected a view of themselves and their lives while eagerly consuming information about secular weather-forecasting. Their representation of agriculture was, if not explicitly holy, certainly a portrait of the farmer and the farm as central to God's ordered Creation. Moreover, the successful achievement of this work was envisaged as central to the calm activity of a Godly community. Although the rebels failed to re-order society in alignment with their understanding of a Godly Christian community, it is unlikely that this view of farming - the main occupation of most - as holy work, beloved by God, simply faded out reformed views, and as will be seen in Chapter Five, it did, in fact, remain present and influential.

Rendering the farm and farming as central to a Christian vision of the world fully validated the practices of agriculture and, inadvertently, the impacts they had on the rest of the environment, intentional and unintentional. For these peasant authors, God's order was limited to the human community; the invasion of wild animals into agricultural space disrupted the order which farming imposed upon the untamed world. Their views were innocent of the Aristotelian natural philosophy taught in universities, and, perhaps for that reason, their views lacked a philosophical foundation which incorporated wilderness and wild animals as anything other than opponents. The enthusiasm of their convictions was based almost exclusively on their newly-shared reinterpretations of the Bible, which, as the central text of their culture, gave authority to their understanding and their actions.

It is frail, this bridge towards understanding the view of the natural environment from early sixteenth-century peasant culture. However, this is the first search for a peasant representation of the natural environment in the first decades of the sixteenth century, making this analysis a preliminary step towards a fuller understanding of the subject.

CHAPTER FOUR: THE STRASBOURG REFORMERS AND THE NATURAL ENVIRONMENT (CASE STUDY NO. 3)

Introduction

The final case study of this thesis turns to the early Evangelical community in Strasbourg for another view of the natural environment with an exploration of Wolfgang Capito's 650-page exegesis of Genesis 1-11, *Hexameron Dei opus*.¹ Following an introduction of the work and its author, the first section will report and comment on Capito's representation of the natural environment, including contextualizing it within the broader Evangelical community. This was a period when unity among the Evangelicals was consolidating around the views of Luther and Melancthon, making a relationship between *Hexameron Die opus* and the latter's work reconciling natural philosophy with reform theology a useful addition to the section. The second section will describe social events from 1525 to 1541, including the consequences of the peasants' defeat in Alsace and further responses to stress from the natural world. Within Strasbourg, this took the shape of welfare reforms, which will be described along with the educational programmes undertaken by the Strasbourg Reformers.

Capito's last written work, *Hexameron Dei opus*, was published in 1539 by a friend and fellow scholar from Hagenau, Wendelin Rihel.² There is only evidence of a single print run. Rihel had received municipal citizenship from Strasbourg in 1525 and by 1531 was known to be operating a bookshop.³ By 1535, the operation had expanded to include printing;

1 Wolfgang Capito, *Hexameron Dei opus explicatum à Wolphgango Fa. Capitone Theologo. Cum Indice locupletissimo* (Argentorati: Vuendelinum Rihelium, September 1539). This study uses the volume at the Regensburg State Library, available digitally through the Bavarian State Library digital collection <<http://reader.digitale-sammlungen.de/resolve/display/bsb11118009.html>> [accessed 13 August 2014].

2 Capito baptized Rihel's eldest son, Josias, while the Rihel family were still in Hagenau, and Rihel is known to have been educated in Latin. Chrisman, *Lay Culture, Learned Culture*, pp. 25 and 14.

3 CERL Thesaurus, 'Rihel, Wendelin (- 1555)', Consortium of European Research Libraries, last edited on 27 November 2006 <<http://thesaurus.cerl.org/record/cni00025609>> [accessed on 24 October 2014].

Chrisman's research shows him to have operated one of the larger establishments in the city, with two presses working at capacity for sixteen of the next twenty years.⁴ Once Johannes Sturm's *Gymnasium Argentinense* opened in 1538, in a building conveniently close to Rihel's presses, the main focus was on printing Protestant and classical texts for the new school. A search through the Universal Short Title Catalogue shows several works by Martin Bucer, Martin Luther, Petrus Dasypodius, Hieronymus Bock, Aristotle and Cicero among his editions, as well as those by Wolfgang Capito. After his death in 1554, Rihel's sons, Josias and Theodosius, operated the business for a brief period, but divided the inheritance within a year.⁵ Josias continued with the family printshop near the Gymnasium until 1598, expanding the range of material chosen for publication.

There are reasons to believe that Capito's *Hexameron Dei opus* was included among the texts studied by the pupils of Sturm's Gymnasium. It was printed in 1539, the year following the school's beginning; it was published by Wendelin Rihel, whose presses specialized in books of this nature, and the language of the text is Latin, with Hebrew scattered regularly throughout. Capito was deeply involved in the work of founding the gymnasium, which united his interests in education as both a humanist and a reformer;⁶ he gave public lectures at the Gymnasium on the Old Testament,⁷ he and Johannes Sturm shared humanist principles, and when the Gymnasium's statutes were revised in 1545, a greater emphasis was placed on theological education, with lectures to be focused specifically on Genesis, Exodus, Deuteronomy, and other specifically-named books.⁸ Upon Capito's death, the only biography from a living peer was Sturm's brief description in a volume of student exercises published in 1542.⁹

4 Chrisman, *Lay, Culture, Learned Culture*, pp. 4, 6, 8, and 18.

5 *Ibid.*, p. 18.

6 See Kittelson, Ch. 8.

7 Amos, p. 89.

8 Marcel Fournier and Charles Engel, ed., *Les statuts et privilèges des universités françaises depuis leur fondation jusqu'en 1789, tome 4/1: Gymnase, Académie, Université de Strasbourg* (Paris: L. Larose, 1894), pp. 50 and 53.

9 Kittelson, p. 4.

Although Capito was clearly closely involved with the Gymnasium, friends with its rector, and the style and subject matter of the *Hexameron Dei opus* was appropriate for student study, there is no documentary evidence listing the book as part of the curriculum for Gymnasium pupils. Despite this absence, the weight of circumstances is highly suggestive that it was used as a text. As such, Capito's exegesis on the first book of Genesis could have exerted no small degree of influence on the manner in which the sons of the elite came to understand the natural world.

As one of the four leading Strasbourg reformers, along with Martin Bucer, Matthias Zell, and Caspar Hedio, there is much information available about the life of Wolfgang Capito. Some attention will be given to his education, position as advisor to Albrecht von Brandenburg, Archbishop of Mainz, his conversion to Evangelical views and role in the Strasbourg reform. Further details are available in James M. Kittelson's *Wolfgang Capito: From Humanist to Reformer*.¹⁰

Born at Hagenau in 1478 to Hans and Agnes Köpfel, Wolfgang attended the Latin school at Pforzheim and went on to receive a Bachelor of Arts from the University of Freiburg im Breisgau in 1505 and a Master of Arts in 1506. Following these achievements, the young man returned to Hagenau and was engaged by Henricus Gran, the publisher, as a proof-reader. It is not known precisely when he Latinized his name to Capito, but it is likely to have been during this period of his return to Hagenau.

After three years of work with the printer, Capito returned to Freiburg to take minor orders and to receive ordination as a priest; the officiant was Johannes Eck, later a prominent opponent to Martin Luther's reforms. Capito also began study towards a Doctorate of Theology in the same year, and, as was common, taught undergraduates in the Faculty of

10 These biographical paragraphs are based on the following: James M. Kittelson, *Wolfgang Capito: From Humanist to Reformer*, *Studies in Medieval and Reformation Thought*, XVII (Leiden: E.J. Brill, 1975) and Erika Rummel, 'Wolfgang Faber Capito Chronology', *The Electronic Capito Project* <<http://www.itergateway.org/capito/page2.html>> [accessed 25 October 2014].

Arts. He was recognized as having a nominalist outlook - that is, of following the *via moderna*, along with Scotus, Occam, and Geiler (whose sermons he very likely had occasion to hear). After he won a position as a professorship in theology in 1512, the Bishop of Speyer appointed Capito as canon and preacher for the Benedictine foundation in Bruchsal, a town on the east side of the Rhine between Karlsruhe and Speyer. There Capito began to learn Hebrew from a Jewish Spanish converso refugee; he integrated it and other ancient languages into his theological exercises, arguing that these alone allowed the scholar to return to the ancient sources.¹¹ Capito received his Doctorate in theology from the University of Freiburg in 1515.

Also in 1515, Capito was invited by the Bishop of Basel, Christoph von Utenheim, to occupy the position of cathedral preacher there. Once in Basel, Capito is known to have enjoyed the company of such noted humanists as Johannes Oecolampadius, Beatus Rhenanus, Konrad Pellikan, and, on occasion, Erasmus of Rotterdam. The combination of learning and piety shown by this last was a particularly powerful inspiration; Erasmus' *philosophia Christi* is described as having provided a complete intellectual and religious programme for Capito.¹² A personal friendship also developed between the two while Capito assisted Erasmus with the Hebrew names for the *Novum Instrumentum*, and correspondence between them flourished for several years. Erasmus' public praise for Capito's skills in Greek, Latin, and Hebrew contributed to the latter's growing European reputation as a Hebraist.

For five years, Capito preached, taught, and lived the life of the mind in Basel, but in 1520, he accepted an invitation from Albert III von Brandenburg, Archbishop and Elector of Mainz, to become the cathedral preacher of the city. The appeal of Albert's invitation is obvious: as an archbishop and a ruling prince, the Elector of Mainz was the president of

11 Kittelson, p. 22.

12 Ibid., p. 23.

the Holy Roman Empire's Electoral College, arch-chancellor of the empire, and primate of Germany. Although having been appointed to preach in Albert's place, Capito was quickly relieved of those duties in favour of offering regular advice in theological matters to the most powerful German cleric of the time.

Theological advice, in the years immediately following Martin Luther's 1517 challenge to the Roman Catholic Church, was a delicate matter. Capito had privately expressed doubts about the orthodox understanding of the Eucharist while in Bruchsal, in a conversation later reported by Konrad Pellikan, but upon arrival in Mainz, was still willing to stand with the Catholic community and work towards reform of the universal church. He was nonetheless in direct communication with Luther, who congratulated him warmly upon his appointment.

Luther had reason to be pleased with Capito's position at the elbow of the Archbishop of Mainz, as within a few months of arriving in Mainz, Albert entrusted Capito with his response to a papal demand that the *Exsurge Domine*, the bull which summoned Luther to Rome, be published throughout Mainz and Magdeburg. The ensuing letter communicated agreement but delay, as Capito claimed (on Albert's behalf) that a consultation with the secular princes was necessary due to the support Luther enjoyed among the people. With this, the *Exsurge Domine* was effectively killed as a means of blocking the spread of Luther's ideas. Capito took further advantage of his position to moderate and delay Albert's responses to several provocative publications. This included Luther's 1520 pamphlet *Address to the Christian Nobility*, which was regularly read as a call for violent reform. In 1521, Capito convinced Albert to refuse the post of inquisitor general for all Germany, thereby avoiding the introduction to the country of an equivalent of the Spanish, Portuguese, and Roman Inquisitions. As well, Capito also threw dust in the eyes of Hieronymus Aleander, papal nuncio and leader of the opposition to Luther at the Diet of

Worms in May 1521, by convincingly representing himself as loyal to Rome even while undermining the Edict of Worms in the same way he had scuttled the *Exsurge Domine*.

Capito's theological views from 1520 and 1521 are difficult to discern; Kittleson describes him as interested in Luther's ideas, but still an Erasmian humanist and, above all, dedicated to a peaceful and harmonious reform of the church. It was this spirit which led Capito to criticize Luther, both in letters and in person, even while protecting him from ecclesiastical officials. Letters to Erasmus reflect personal confusion, and by February 1523, he was ready to leave Albert's service and move to Strasbourg, where his efforts to secure the provostship of the collegiate church of St. Thomas had been successful. He was granted citizenship by the *Rat* that same year.

1523, however, proved to hold little peace and quiet for Capito, as Reform controversies were alive in Strasbourg. A conversation with Matthias Zell proved more influential than all of Luther's tracts and arguments, as, following the encounter, Capito began to express reforming ideas in his letters, tracts, and behaviour. On 2 March 1524, the parishioners of L'Église Saint-Pierre-le-Vieux, one of Strasbourg's nine parish churches within city walls, invited Capito to become their preacher, and by 4 May, with the approval of the *Rat*, he was preaching there. It was a deliberate and public decision to break with the Hildebrandine tradition of hierarchical authority in favour of the Reformation principle of called ministry,¹³ and his break with the Roman church was even more obvious to the Strasbourg community on 1 August, when he married Agnes Roettel, daughter of a member of the Strasbourg XV, the *Rat's* committee responsible for domestic affairs. By October 1524, Capito was referring to the Pope as the Antichrist; around the same time, he broke his friendship with Erasmus by publicly criticizing an early draft of *De libero arbitrio diatriba sive collatio* (The Freedom of the Will), the Dutch humanist's refutation of Martin

13 Kittelson, p. 108.

Luther and his reforms.

Having made his commitment to Luther's reform, Capito brought his scholarly skills and political adroitness to the Evangelical community in Strasbourg, authoring numerous pamphlets (both anonymously and signed), theological tracts, and even hymns, as well as continuing to preach for several years and maintaining a large correspondence. After the Peasants' War, he joined Bucer, Hedio, and Zell in campaigning the *Rat* for a ban on the mass and other Catholic rituals, including rogations; the goal was achieved in February 1529. In the irenic spirit of the Gospel, he interviewed or extended personal hospitality to Anabaptists such as Michael Sattler, Jacob Kautz, or Martin Cellarius, among others, with the goal of assessing their relationship with the Holy Spirit and, if possible, converting them to Evangelical views. This led to some conflict with Martin Bucer, who was convinced that assessing the religiously radical on a case-by-case basis was dangerous to the Evangelical church in Strasbourg. Bucer preferred to have Evangelical orthodoxy defined in the city through a municipally-sponsored synod featuring debates over Sixteen Articles he had composed, followed by public vows of loyalty to the city and its religious doctrine; taken together, these would establish heterodoxy as a municipal crime. Capito's view of that approach, shared by other Evangelicals like Anton Engelbrecht, the pastor at St. Stephen's church, was that an individual conscience was not receptive to force in matters of faith. This latter perspective, largely due to the respect held for Capito by the *Rat*, held sway for several years and was the basis of Strasbourg's reputation as a haven for the religiously unorthodox during the period immediately following the Peasants' War.

Differences of opinion as to the most appropriate method of bringing order to the city's Christian community continued until 1531, when several grievous events brought about a change in Capito's outlook. These included the deaths of ally Huldrych Zwingli at the Battle of Keppel, axe in hand, and close friend Johannes Oecolampadius in Basel. Capito

himself was infected by the plague bacteria in November; Agnes, his wife, was among the 1200 people who died of plague that autumn, throwing him into depression. After his recovery, Bucer suggested he would find improvement in body and soul¹⁴ by accompanying other leading reformers on an extended trip to Basel, Zurich, Bern, Esslingen, Memmingen, and Augsburg, for the purposes of establishing organizational patterns for the new Evangelical churches of those cities. Capito's even-handed skills in mediating conflict among the reformers of those cities were noted appreciably; on the personal level, the demand and necessity of structural clarity appear to have impressed themselves upon him, as he returned to Strasbourg four months later supportive of Bucer's approach to the issue of religious conformity. He also returned with a new wife, having married Wilbrandis Rosenblatt, the widow of Oecolampadius, in Basel.

Bucer's long-anticipated synod took place in June 1533, with Capito's participation and full support; the organization of the church in Strasbourg became closely associated with, but theologically distinct from, the city's enforcement of an official doctrine (for further discussion, see note 72, below).

Having achieved primacy in municipal religious institutions, the Evangelicals then brought a theme to the forefront of their activities which had been included since 1524: education reform, a central platform for establishing their vision of a Godly community. The first petition the Evangelicals made to the *Rat* that year, likely composed by Capito, had included the appeal for schoolmasters as necessary for the growth of piety. Theological education was a regular theme for Capito, as for many other reformers; it is seen in other petitions associated with him, and was included in requests for access to income from secularized ecclesiastical properties, the 1525 preface to the third edition of his 1516 Hebrew grammar, *Institutiuncula in Hebream linguam*,¹⁵ and in his willingness to advise

14 Ibid., p. 190.

15 Wolfgang Capito, *Institutiuncula in Hebream linguam. Autore Volphango Fabro Professor Theologiae* (Basel, 1516).

the theological faculty at the University of Basel. He became deeply involved with the work of establishing a Latin school in Strasbourg, which found fruition in 1438 with the founding of the *Gymnasium Argentinense*. Directed by Johannes Sturm, students enjoyed Capito as one of the earliest lecturers. Capito became ill early in 1541, briefly recovered, but died on 2 November of that year.

4.a 'In Principio': Nature in Capito's *Hexameron Dei opus*

The Strasbourg reformer was not, of course, the first theologian to reflect upon the creation of the world as represented in Scripture. He published amidst a flurry of commentaries by early reformers in southwestern Germany and northern Switzerland, including Zwingli (Zurich, 1527), Konrad Pellikan (Zurich, 1532), Johannes Oecolampadius (Basel, 1536), Peter Martyr Vermigli (lectures delivered in the early 1540s, published posthumously in 1569), Luther (Wittenberg, 1545), Calvin (Geneva, 1554), and Wolfgang Musculus (Bern, 1554).¹⁶ This section explores Capito's exegesis for his representation of the natural world and his views of the appropriate Christian relationship to it.

Hexameron Dei opus is a large volume, being some six hundred and fifty pages published as a quarto. It begins with a fourteen-page preface dedicating the work to Duke William of Cleves (1516-1592), followed by a substantial index of sixteen pages. The pages are double-sided, with the text displaced towards the binding, which allows ample room for the many marginalia with which the book is liberally sprinkled. After the index are ten pages presenting the thirty-one verses of the first book of Genesis, with snippets of Torah commentary from the Targum Onkelos and the Jerusalem Targum.¹⁷ Scripture is offered in Latin with large font, widely spaced, while the comments are smaller and cramped, with

16 John L. Thompson, ed., *Genesis 1-11*, Reformation Commentary on Scripture, I (Downer's Grove: InterVarsity Press, 2012), p. lxvi.

17 Both are Hebrew commentaries on the first book of Torah, translated by Capito into Latin; the first is considered today to be an eastern or Babylonian edition, while the second is understood as a western or Israeli text.

Hebrew and Greek terms included. As did many Northern humanists, Capito firmly believed that a satisfactory education required knowledge of all three Classical languages. The large volume mentions the natural environment frequently; the following passages were selected to facilitate a comparison with Geiler and the peasant authors centralized earlier in the other case studies of this research project.

Following Capito's final words of justification for the book, he articulated the conceptual framework for his work about Creation.¹⁸ Any reader, he began, with confidence in Scripture who should contemplate the ordering of the world will quickly recognize that God's strength and power are infinite, and that the universe and all its parts depend upon God's will and word. That is, once persuaded that everything was created *ex nihilo* by the Father's co-eternal word, one concludes that this one and the same Father keeps all things in existence as long as he wishes. Whether pious or impious, Capito continued, the reader will realize at once that power does not give rise to itself, nor does the hand of change move itself. The perception simultaneously arises that we are part of the universe, which, in its entirety, arises and abides through the power of the one word of God, and until it should pass away, he acts and rests by turns. The reader will recognize that all things which have been made are the prerogative of him who created them. In this way, Capito wrote,

18 *Nam si lector, quisquis fuerit fidem scripturae qualemcunque habens, hoc officium Dei, ut ab Mose exponitur, ordine consyderat, is planem vim atque potentiam Dei esse infitam agnoscet. Deinde universum hoc cum suis partibus ab eius uoluntate ac uerbo pendere intelliget, com omnia ex nihilo simpliciter per co-aeternum patri uerbum condita esse per suasum habebit. Eodemque uno, quoad uolet, conseruari omnia.*

Hac noticia sive pius sive impius, sive reassicitur, statim constituet, sibi non esse potestatem, necque manum uertendi tanquam ex se, quia simul persentiscet se esse partem uniuersi, quod per unius uerbi Dei uirtutem totum existit, & manet, & quoad intercidit per uices agit atque interquiescit. Agnoscit illius esse qui condidit, cuique rei factae, tantum quoque tempore uirium illargiri quantum uelit, illargitumque quincunque visum, recipere. Itaque moderare nutu ac renutu omnia, ut uerbo suo condidit omnia, nec est qui intercedat. Quis enim uoluntati Domini resisteret? Qui ex illo nihilo inerti tantam rereum energian, atque efficaciam solo uerbo instituit? Sic omnes actiones suas, qua aut sint aut uidentur ali cuius esse, in Deum authorem, ut referat, pius homo iuxta ac impius admonetur.

*Quid autem emolumentum hinc ueniat ex dictis apparet. Nam cum se quatenus ope Dei singulari destituitur, nihil esse ex animo agoscit, & idem ex rerum ordine animaduerso coram cernit, sibi non potest non dissidere. Nam tum persuasissimum habet quod est & quot agit, id nihil esse aliud quam divini uerbi potentiam, cui se sua que omnia secure concredidit. Capito, *Hexameron Dei opus*, fols. 17^v-18^r.*

God governs everything by a nod or shake of his head, just as he created all things by his word, and there is no one who would hinder him.

Capito made no attempt here to explain the manner in which God created the material world or the manner in which he sustains it, nor did he later offer explanations for these. Capito's God is simply simultaneously intimately present to all of Creation and unknowably mysterious; God's direct attention is responsible for everything that exists and everything that happens. Presumably, wilderness and the activities of wild animals are included. There is no distance or distinction between Creation and God's will; according to Capito, to learn about Creation, therefore, is implicitly to learn about God's will for it.

Having asserted his view of Creation and God's will as inextricably interwoven, Capito went on to establish Scripture as the only appropriate manner of understanding both.¹⁹ His conflation of God's will with the natural environment and insistence that Scripture was the sole interpretative filter meant that other approaches to understanding natural events or processes could be disregarded easily. This included, for Capito, the methods bequeathed from Classical philosophers or written material from other authors contemplating the natural environment without the illumination of the Holy Spirit, both of which were derisively dismissed as 'watchtower knowledge'. Which is to say, watching Creation (God's Will) when God is known, but not for the purpose of glorifying Him; such knowledge was inadequate because it did not, in Capito's opinion, incline a person towards doing good.

Capito's position was not unusual for an Evangelical reformer. Luther's objections to Aristotelian philosophy were central to his critique of the Roman Catholic Church, and were expressed forcefully and repeatedly from February 1517 onwards²⁰ - even prior to his

19 *Duplex est cognitio Dei, Naturalis & diuina. Illa quidem aut literis philosophicis traditur, aut legendis scripturis humana ratione sine illuminatione spiritus coomparatur, quae aeternam Dei potentiam subtiliter contemplatur. Eam liceat ut appellam speculativam. Nihil enim que speculatur deum, cum deum cognitum, non ut deum glorificet. Non enim format hominem ad opus bonum.* Ibid., fols. 100^v-1^r.

20 Sachiko Kusakawa, *The Transformation of Natural Philosophy: the case of Philip Melanchthon* (Cambridge: Cambridge University Press, 1995), p. 32.

attack on indulgences. The core of the objection to Aristotle was that the Greek's philosophy was the central pillar upon which hung the conviction of medieval scholastic theologians that theological truths were attainable through human reason.²¹ It was, in Luther's view, a profoundly mistaken approach, leading him to conclude that natural philosophy, as found in the early sixteenth-century university, was actively endangering hopes of eternal salvation. As Sophie Kusukawa points out in her monograph *The Transformation of Natural Philosophy: the case of Philip Melanchthon*, 'Luther's attack on Aristotle (...) was thus an attack on the whole basis on which scholastic theology rested'.²² In his 1520 tract *Address to the Christian Nobility of Germany*, Luther introduced his programme for university reform: the faculty of arts, through which every undergraduate student continued to matriculate (see p. 128), should retain Aristotle's *Logica*, *Rhetorica*, and *Poetica* for their uses in preaching and speaking, but his philosophical books (*Physica*, *Metaphysica*, *De anima*, and *Ethica*) should be abandoned.²³

The disagreement by Luther (and, therefore, by 1539, Capito) with natural philosophy, however, was based on the use made by medieval theologians of the method of reasoning proposed by Classical thinkers; both he and Philip Melanchthon accepted the need for reliable knowledge of the natural world, particularly for medical purposes.

As the reformers gained influence, universities which were sympathetic to the reform changed their curriculum and structured it similarly to that of the institution at Wittenberg. By 1526 the undergraduate Arts degree there was re-oriented towards Latin grammar, dialectic, and the elements of rhetoric and of mathematics. The languages, rhetoric, and dialectic were all seen as essential for handling theological questions confidently and rhetoric, particularly, was positioned as crucial to the development of eloquence needed by

21 Ibid., p. 33.

22 Ibid.

23 Ibid., p. 42.

preachers. Achieving a Master of Arts required knowledge of the Greek language, through which knowledge of the natural world was gained from Classical authors; plants, gems, or living beings were particularly advised, due to their importance for medical issues.

Advanced study also included more rhetoric, the works of ancient orators, and advanced mathematics.²⁴

Notwithstanding their criticisms of scholastic natural philosophy, some reformers turned anew to Aristotle in order to find an intellectual foundation for reforms in the legal arena; by 1532, Melanchthon found himself using the *Ethica* once more, this time as the basis for teaching the moral philosophy of civil obedience.²⁵ Carefully distinguishing his use of the *Ethica* as demonstrating precepts from the 'law of nature' (necessary for orderly civil life) from the role it played for the Catholic Church in the theology of justification or of good works, Melanchthon presented moral philosophy as part of Divine Law, although not included in the Gospel. The law of nature was often defined according to Romans 2:13-15,²⁶ and had developed through the Catholic jurist tradition to mean the instincts divinely bestowed upon all humans, such as that of self-preservation. It frequently served as justification for civil law and furnished the basis for the political philosophy of both Melanchthon and Luther.²⁷

Despite returning to Aristotle for philosophical support in achieving the civil aspects of reform, Melanchthon was meticulous in insisting that moral philosophy, as part of Divine Law, must be known in the context of the Gospel. For example, in a poem from 1532, he praised God the Creator, who placed in man the law of nature for civil virtue, for which the

24 Ibid., pp. 59-61.

25 Ibid., p. 70.

26 Romans 2:13 Non enim auditores legis justi sunt apud Deum, sed factores legis justificabuntur. 2:14 Cum autem gentes, quæ legem non habent, naturaliter ea, quæ legis sunt, faciunt, ejusmodi legem non habentes, ipsi sibi sunt lex: 2:15 qui ostendunt opus legis scriptum in cordibus suis, testimonium reddente illis conscientia ipsorum, et inter se invicem cogitationibus accusantibus, aut etiam defendentibus

27 Kusakawa, p. 70.

Ethica usefully teaches; Christ, however, was necessary for the Word of God to live in man.²⁸ He was 'always at pains to point out that controlling external action did not merit salvation'.²⁹ *Physicae seu naturalis philosophiae compendium* (1543) and *Initia doctrinae physicae dictata in Academia Vvitebergensi* (1549), two later works of natural philosophy authored by Melanchthon, did not waver from this perspective.

Capito was acquainted with Melanchthon and Luther, as mentioned earlier, but he was not a partner in Melanchthon's renovations to natural philosophy. Although the *Hexameron Dei opus* was an extensive exploration of God's creation of the natural environment, Capito was unequivocally working with the Gospel, and not exploring the natural world for medical purposes or for its own sake. As a highly-regarded theologian engaged in his profession, his final publication focused on the meaning of Creation, on God's purpose for making the world the way it was, and on the relevance of Genesis' Book One for human salvation.

Denying the validity of Aristotelian-influenced natural philosophy as a useful method for developing an understanding of the natural world had intellectual consequences from which Capito did not shy away. He advised a studied indifference to the reasons for essential differences or unique phenomena, such as those between precipitation regimes or life spans; knowledge about such things, he claimed, was purposely withheld by God and not for humanity to share.³⁰ Therefore, Capito asserted, it was not for humans to know why

28 Philip Melanchthon, *Corpus reformatorem Philippi Melanthonis opera quae supersunt omnia*, ed. C.B. Bretschneider and H.E. Bundseil, vol 10 (Halle, 1834-52; Brunswick, 1853-60), p. 537f.

29 Kusakawa, p. 72.

30 *Interea uero nescimus cur sint alia loca arida, alia succulenta & foecunda: quia illud scire nihil nostra interest, ita nescimus qua mobrem alij alius dono exuberantiore adornatus sit, aut etiam cur est duobus in lecto uno, unus assumatur et alter relinquatur. Nam in utroque hoc opere dei incertitudo natuae hominis congruit, quae rerum infinitarum cognitionem non capit. Neque ex revelatione aliud offertur, quoque quod per Christum in deum aedificat. Iam quia creatorem omnium scimus, et hominis gratia creasse omnia scimus, nescimus autem cur tanta tamque diversa copia rerum nos affuderit, & quare quanque rem singulariter illo aut illo tempore & talibus circumstantiis nobis adhibuerit, atque oculis contemplandam obiecerit, admiratione providentiae diuinae nihil temere agentis maiore, causamque singulorum operum & affectionum uniuscuiusque rei & si certissimam illi esse persuasissimum habemus, tamen eam scire uel ob id non laboramus quod eam patefacere conditori non libuerat. Ibid., fols. 2345^v-5^r.*

one person has greater gifts than another, nor even why, of two people in one bed, one is taken and the other left. Uncertainty, he claimed, was fitting to our finite human nature, and revelation only sets forth that which builds people up in God through Christ. Humans do not know why God would have provided such an abundance of different things, nor the reasons for some were made available for contemplation at certain times, places, or circumstances, and he told his readers that even if their admiration convinced them of the surety of God's will, labouring to know more about what lay before their eyes or anything the creator was not pleased to disclose was not to be undertaken.

Along with the prohibition on Scripturally-uninformed investigations of the natural environment, Capito regularly asserted that the very same natural world was created solely for the sake of human beings. The opinion that humanity was given full authority over the natural environment by God frequently accompanied this assertion, such as during his exposition of Genesis 1:28,³¹ when he articulated his view of the position of humanity in the hierarchy of Creation.³² Unsurprisingly, that position was one of dominion. Capito expanded upon the simple clause, however, to extend God's command to human industry and labour, which renders everything as if subservient to man. He did this by altering their form though sowing, planting, and other aspects of agriculture, thereby ordering those

31 Genesis 1:28: *Benedixitque illis Deus, et ait: Crescite et multiplicamini, et replete terram, et subjicite eam, et dominamini piscibus maris, et volatilibus cæli, et universis animantibus, quæ moventur super terram.*

32 *Et subiicite eam. Hæc est ultima pars in formula benedictionis primorum parentum. Et subiicite terram, et dominamini in pisces maris et c. Cuius quidem uestigia qualiacunque supersunt. Nam eiectus è paradiso, terram gignendo homines replens, eam cum rebus in eo contentis uniuersam sibi subiicere cœpit, subindeque amplius subiicit. Quid enim extat uspiam, quod alienum sit ab imperio hominum, quod illi industria et labore tandem non reddant sibi obnoxium, quodque in quasi seruitutem non adigant assiduitate, si in illud constanter incubuerint. Primum enim solus Dominus est aquatiliū, terrestrium atque avium per aera uolantium. Deinde fructus terre uarie utitur suo arbitratu quos in formas transmutat, iubetque plantatione, insitione, curaque reliqua rusticana, quos uelit fructus et quantum uelit edere. Quid de terræ obsequio miraculi superest. Nam homines eam uerrunt, arant, occant, ut macerata lætiorem segetem reddat, eam effodiunt, uisceraque eius penitissime rimantur propter plumbum, stannum, ferrum, argentum, aurum, et cætera id genus eruenda. Quam uero mirificis operibus eam præterea instruunt, atque extracta cum uidetur iterum demoliuntur, ut non commode solum, sed etiam iucunde habitent. An hæc cedo argumenta obscura sunt, hominem in ea solum dominari. Ex hoc igitur loco uidetur psalmus octauus defluxisse. Fecisti homini inquit, potestatem operum manuum tuarum. Omnia posuisti sub pedibus eius, oves, et boves, et uniuersa pecora campi. Capito, Hexameron, fols. 293^{f-v}.*

fruits to blossom and come forth as desired. Capito went on to write of the earth's subjugation as marvellous because of the crops produced by plowing, harvesting, and harrowing, and the minerals produced by mining. These allow men to live comfortably and pleasantly, proving that, according to him, on earth man alone rules. He interpreted Psalm 8 as deriving from this point,³³ pointing out that God set man over His works and subjected all things under his feet.

How did Capito explain humanity's privileged position in Creation? Founded in his exegesis of Genesis 1:26,³⁴ Capito's explanation for humanity's powerful position is due to having been created in the image of God.³⁵ An effect of this is humanity's capacity to rule of animals, because external activity and interacting with other beings to follow from one's substance and implanted character. Adam, he wrote, was necessarily made in God's image and that image included God's authority over the fish, birds, and animals; just as man resembled God in goodness, wisdom, and righteousness, it was also fitting for him to obtain the faculty of divine authority in governing the world, in order that he might develop a similar consciousness.

Capito tidily slotted Adam at the pinnacle of Creation, obedient to God and authoritative over the animals, birds, and fish. Creation's hierarchy is emphasized by Capito's ascription

33 Psalm 8: *Domine Dominator noster quam grande est nomen tuum in universa terra qui posuisti gloriam tuam super caelos ex ore infantium et lactantium perfecisti laudem propter adversarios meos ut quiescat inimicus et ultor videbo enim caelos tuos opera digitorum tuorum lunam et stellas quae fundasti quid est homo quoniam recordaris eius vel filius hominis quoniam visitas eum minues eum paulo minus a Deo gloria et decore coronabis eum dabis ei potestatem super opera manuum tuarum cuncta posuisti sub pedibus eius oves et armenta omnia insuper et animalia agri aves caeli et pisces maris qui pertranseunt semitas ponti Domine Dominator noster quam grande est nomen tuum in universa terra.*

34 Genesis 1:26: *et ait faciamus hominem ad imaginem et similitudinem nostram et praesit piscibus maris et volatilibus caeli et bestiis universaeque terrae omnique reptili quod movetur in terra*

35 *Deinde constat exercendi in animali utriusque elementi potestatem non esse imaginem dei, sed effectum illius. Nam substantiam & inhaerentia sequitur externa actio, & commercium cum alijs rebus, quae extra se sunt. Oportet ut in imaginem & secundum similitudinem dei, qui aliter fieri non potuit, sit factus, si idem debet in alios regno potiri. Nam qui non est, is nihil dum agit. Rursus quoniam factus Adam, in imaginem & secundum similitudinem dei, ad parendum deo factus erat, conveniebat ut ei iussa facienti pisces maris, aves coeli & animantia terrae ex adverso parerent, perinde atque ipse deo conditori paruit: conveniebat sanem, ut quemadmodum bonitate sapientia & iustitia deo similis erat, ita & diuinae potestati in administrando mundo facultatem, pro ut hominis captus serebat similem obtineret... Capito, fols. 283^{r-v}.*

of 'royal authority' to God, extending the conceptual metaphor organizing his view of the world. A well-developed and intricate metaphor by the early sixteenth century, terms for God such as 'Lord' or 'King', which were also used for the highest civil authorities, were found throughout Christian faith and practice. Capito (and the reformers') novelty was in the immediacy with which they presented that authority to human beings, without mediation from saints, angels, or other spiritual entities.

The importance of this conceptual metaphor for understanding Capito's view of Creation is emphasized by the punishment earned by Adam for disobeying God and eating the fruit of the tree of knowledge of good and evil.³⁶ He writes that filthy ignorance was present in place of knowledge, hatred in the place of affection, rebellion instead of obedience to God and instead of orderliness, there was chaos, irreconcilable strife, and outrage.

In a hierarchy whose stability required acquiescence to the wishes of superiors, disobedience was a primary offence, and Capito speaks fulsomely and repeatedly about the severe consequences of disobedience to God. It is not too large a stretch to speculate that his emphasis on obedience as a pre-eminent Christian virtue had as much to do with his desire for civil order as an individual's eternal salvation and shows his personal deference to the desires of Strasbourg's civil authorities. For the adolescents who were likely reading *Hexameron Dei opus*, and who, if all went well, could occupy positions at the upper end of the social order, each reminder of the value of obedience may have served to reinforce what was due to them from social inferiors, as well as what was due by them to God.

Alongside his central desire to represent Creation as ordered and ranked, Capito did provide a few explanations for natural processes which credit both natural causes and

36 *Ignoratio Dei, blasphemiae, tetra odio numinis acceissent: ad impietatem & malitiam animus tempore se obsirmasset, & impetus affectuum furiosissimi in prauos habitus degenerassent: adeo uersa erant semel omnia, ut pro scientia inesset foeda ignorantia, pro dilectione odium, pro obsequio Dei rebellio, pro ordinatione in toto homine nihil quam perturbatio, quam seditio irreconciliabilis ac contumeliosa.* Ibid., fol. 285^v.

divine fiat. In explaining, for example, the germination and growth of plants, the reformer's exegesis on the clause 'Germinet terra germen' (Genesis 1:11³⁷) allotted generative power to the earth itself, mediated by seasons and the weather.³⁸ He also mentioned that some think plants sprout three hundred times more abundantly from ground beneath which is a buried human cadaver, because when the human body returns to earth, it fully represents man's native condition.

The reformer took advantage of God's creation of animals on the sixth day to elaborate on the differences between them and human beings. He did this by refining upon distinctions between two types of soul - the living soul, found in animals, and the immortal soul, bestowed upon humans.³⁹ A living soul, such as that found in reptiles or mice, is a body endowed with life (vitality and the principle of movement), which Capito regarded as the mental and physical states of this life. But the immortal soul requires a body and members to do for the work of breath and respiration; he positioned the human soul between the boundary of the body and the breath of life. The soul and spirit of humans, which, he wrote, are called the same thing, differ from the souls of animals because the souls of animals are made from matter and are corruptible, while the soul of humans is beyond matter and was gifted to men by God.

37 Genesis 1:11: And God said, Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself, upon the earth: and it was so. Internet Sacred Texts Archive <<http://www.sacred-texts.com/bib/kjv/gen001.htm#011>> [accessed 20 May 2015].

38 *Nam terra vim quod que germen producendi possidet, qualem in areis structurarum, si ruderibus repurgantur inesse atque explanari cernimus. Nam statim varias herbas et stirpulas uel sine satione proferunt: in qua regrata quoque vicissitudo conservatur, quam videtur tempus et cæli temperies attemperare. Sunt qui ex cadavere hominis, imposito lapidi si computruerit, genera herbarum amplius tercentum enasci autument, quod quidem terra est, et in terram utpote corrupta hominis forma convertitur, eoque nativam terræ conditionem pentius representat. Quare terræ natura est genera stirpium perpetuare...* Capito, *Hexameron*, fol. 226^r.

39 *Sciendum tamen quod reptile sit minutum animal, quod repit, aut quod procurrendo repere quodammodo videatur, brevibusque sit pedibus, ut mures, glires, mustelæ. Nam quia sunt corpusculis humilioribus quasi prorepere videntur, si se aliquo pro ripiunt. Et anima vivens est corpus vitra præditum, in qua, ut sic dicam vitalitas atque animandi in est ratio. Unde et pro affectibus hanc vitam consequentibus accipitur. Verum anima immortalis nominatur, quo ex cap. 2, vers.7. colligitur. Verum id nominis ei proprie non congruit, ut ait Meimonius in libro cui titulus Mada, nisi respiratione et efflatu opus habenti, ad quam rem corpus et membra requiruntur. Itaque intra corporis regionem anima spiraculum vitæ est. Alioqui communi appellatione dicitur anima et spiritus, sed hoc differt, ab animantium brutorum animabus, quod hæc sunt ex materia deductæ et corruptibiles, illa autem extra materiam et omne creaturam a Divino Deo condonata est homini. Ibid., fols. 261^v-2[;]; Capito included several Hebrew terms alongside the Latin; they were excluded from this passage for readability's sake.*

Another passage on animals focuses on the fear shown by wild animals of mankind, which is interpreted as proof of the authority given by God to man over them.⁴⁰ The superiority of man is ascribed not to his natural qualities, strength, or mind, but to the power of the divine blessing which was instated upon Noah's descendants at the Flood and which endures even in corrupt sinners. This passage, as many others, illustrates the *a posteriori* nature of Capito's exegesis, in that he provides knowledge which proceeds from observations or experiences to the deduction of probable causes. That is, Capito provided empirical observations of the natural environment which are taken as proof of God's will as the primary cause for the nature of those observations.

Capito's exegesis of Genesis Book One scrupulously avoided the Aristotelian natural philosophy with which, as a university-trained theologian, he would have been intimately familiar. Nonetheless, reinforced by the demand from Strasbourg's *rat* to foster obedience and order in the reform community, he drew upon familiar resources to frame and articulate his view of God's work in making Creation. These were primarily his skills with ancient languages, allowing comments from the Targum Onkelos and the Jerusalem Targum to illuminate the *Hexameron*, but also the concept of the Great Chain of Being. The idea was obviously operative in Capito's exegesis, but in a sharply abbreviated format: humanity is no longer positioned somewhere in the middle, below the mediating angels, saints, devils, or demons, but immediately beneath God. The animals, as well as plants and minerals, continued to occupy subordinate positions to men and women.⁴¹

40 *Huius imperii in omnia documentum esse putant, quòd feræ etiam truculentæ hominem coram uereantur, quasque exhorrescant: quæ quidem est hominis excellens præstantia. Ea uero non ingenio, multo minus uiribus eius tribuenda, et si mente animantibus us reliquis sit potior. In paucioribus qui animantibus ad conspectum hominis oboriuntur, nos uim huius diuinæ benedictionis, quæ in corruptis peccatoribus tantum ualet, depredicamus, cui conseruandos nos ipsos dedidimus, quanquam à diluuiò uestigium huius subiectionis instauratum sit quo culpa sua priuandi fuissent, nisi ingratis diuina beneuolentia consultum uoluisset, ne genus hominum uniuersum interiret. Ait enim in benedictione Noah, et metus et terror uester sit super omnem bestiam terræ, et super omnem auem. Documentum itaque diuine benedictionis in paradiso facte, quæ renouatur ipsi Noah à diluuiò, est pauor animantium de homine, quòd nos ad gloriam Dei extollendam conuertimus, qui securitati nostræ hoc modo consuluit. Capito, Hexameron, fols. 294^{r-v}.*

41 Women are, according to Capito, equal to men but subject to them for the sake of order and from the sequence of creation; however, it must be noted that Capito did not extend this last reason to similar authority to any creature created before man. *Ibid.*, fols. 287^v-8^r

To finish this section, there are two primary observations which may be offered about *Hexameron Dei opus*, leading to two conclusions and several more questions. The first observation of the work is that Wolfgang Capito explicitly and repeatedly articulated the centrality of humanity to Creation's purpose, allocating a privileged place to human beings in relation to all of the created sphere, including the natural world. It is true that Capito's subject is Book One of Genesis, during which God creates the earth and all the creatures on it, so it may be suggested that a central role for humanity is a reasonable expectation for an exegesis of that Book. The full union of God's will with the natural world, however, built on Capito's refusal to integrate natural philosophy into his exegesis to provide only one way for an appropriately Christian understanding of events, forces, and processes in the environment: as direct messages from God to human beings.

Moreover, one of the roles of Genesis in the Bible is to articulate cosmogony from a Judeo-Christian perspective; Capito's comments upon Book One re-interpreted an indispensable and central text from the Lutheran perspective. Culturally, his work contributed towards solidifying the intellectual and religious foundations of the new Reform society the Evangelicals were building in Strasbourg and elsewhere. Future research into the many theological differences between Catholic, radical, and Protestant exegetes may benefit from a comparison of pre- and post-reform commentaries on Genesis, but that is not the purpose of this thesis. In the context of religious perspectives on the natural world available to Strasbourgeois from 1509 to 1541, *Hexameron Opus dei* stands out for the manner in which Capito starkly asserted that Creation was made for human beings to exploit. Although his perspective did not emerge *ex nihilo*, nearly five hundred years of familiarity with it may impede our appreciation of the unwonted degree of instrumentality ascribed to the natural environment in Capito's exegesis, where strident emphasis was placed on its primary purpose as a platform for human destiny.

A comparison of Capito's views with those of Geiler and the religiously radical will be pursued in the conclusions of this thesis, but some aspects of Capito's work will benefit from exposition here. First, Capito's constitution of the natural world as having been created for humanity was not a prohibition against observing and learning about it, as demonstrated through his exuberant appreciation of improvements in agriculture and mining as fulfilling God's order to subdue the earth. This was theological support for Melanchthon's work in redeeming natural philosophy for the Lutheran universities, whose development can be traced in publications since the mid-1520s and which found expression in his works of the 1540s, *Physicae seu naturalis philosophiae compendium* (1543) and *Initia doctrinae physicae dictata in Academia Vvitebergensi* (1549).⁴² In the latter, Kusukawa notes that Melanchthon considered natural philosophy worthy in its own right; the whole nature of things, he wrote, is like a theatre for human minds which God wished us to view.⁴³ For that reason, he placed in our minds the desire for considering things and the pleasures which accompany gaining knowledge about them. These reasons, according to Melanchthon, invite healthy minds to the consideration of nature, even if not for utilitarian purposes; the mind is led to beholding things by its own nature. To consider nature, then, is to follow one's own nature and it leads to the most pleasant joy.

In the three books of the *Initia doctrinae physicae*, Melanchthon's understanding of natural philosophy shared much with Capito's earlier *Hexameron*, including a view of the world as having been created for the sake of man.⁴⁴ However, Melanchthon was primarily interested in the 'consideration of matter, of the qualities in matter and their effects, which are the causes of changes in the bodies, such as generation, nutrition, alternation and corruption'.⁴⁵

42 Kusukawa's study of these two volumes focuses on the *Initia doctrinae physicae*, due to the patchiness and repetitive nature of the earlier book's arguments; her decision is acceptable here. Kusukawa, p. 149.

43 Philip Melanchthon, *Initia doctrinae physicae*, in *Corpus reformatorum Philippi Melanthonis opera quae supersunt omnia*, ed. by C.B. Bretschneider and H.E. Bundseil, 13 (Halle, 1834-52; Brunswick, 1853-60), p. 187.

44 Kusukawa, p. 154.

45 Melanchthon, *Initia doctrinae physicae*, p. 191.

In the first book, he justified the validity of a natural knowledge of the existence of God, defined Providence as 'knowledge by which God foresees everything and a government by which He protects His whole creation', and dealt with the motions and effects of the sun, the moon, and the planets.⁴⁶ The second book featured an exploration of the kinds and classification of causes, among which, for example, an Aristotelian argument eliminating accidental causes as due to fortune or chance was illustrated with Scriptural examples. The argument concluded that, 'because it is impossible for this most beautiful order of things (...) to have come into being by chance or to subsist merely by chance,⁴⁷ the material existence of the world is a 'pointer to God'.⁴⁸ The third book examined the four elements and the causes of various changes in matter. As Kusukawa notes, the message of the work is 'to demonstrate God's Providence throughout the physical world in an Aristotelian way'.⁴⁹ Capito, however, was primarily interested in inspiring his readers to greater faith in God with the *Hexameron*. Having dismissed natural philosophy as 'watchtower knowledge', Capito asserted that revealed knowledge is eminently practical. This knowledge, he wrote, comes into play not so much in one's thoughts as in one's behaviour, where it is tireless and unceasingly concerned with our entrusting ourselves to God, for our calling upon him, for accepting all things from him, and for giving thanks to him alone.⁵⁰

Capito can be understood as subsuming an intellectual knowledge of the natural world into his theological vision of Creation, while Melanchthon accepted such knowledge as valuable for its own sake and for human purposes. Could the popular desire for practical means of understanding the environment (as exemplified by the best-selling volumes

46 Kusukawa, pp. 151-4.

47 Melanchthon, *Initia doctrinae physicae*, p. 346.

48 Kusukawa, pp. 154-7.

49 Ibid., p. 158.

50 *Haec non tam in cogitationibus, quam in usu & praxi uerfatur, operosa & assidua sollicitatrix ad permittendum se deo, ad invocandum illum, ad accipiendum ab eo omnia, gratiamque illi uni habendam. Nam est persuasio certa, Deum suo uerbo, et posse et uelle nos tueri & conseruare.* Capito, *Hexameron*, fol. 101^r.

Wetter Büchlin and *Bauernpraktik*) have contributed to his motivation for developing and maintaining his perspective? Melanchthon, and Luther with him, were careful to emphasize the medical applications of Aristotelian-based knowledge, and there is no evidence suggesting that Reynmann's *Wetter Büchlin* or the *Bauernpraktik* were considered by them. Nevertheless, their understanding of their culture was sophisticated and nuanced, and that such an accommodation to the practical needs of their new and potential converts is not beyond the realm of possibility.

Did the two Lutheran theologians, Capito and Melanchthon, straddle the historical divide between the unity of science and religion and their development into distinct fields of knowledge? Neither author would accept the pure materialism of modern natural sciences, but its roots are visible in *Initia doctrinae physicae* where they are not in *Hexameron Dei opus*.

A second aspect to Capito's central view of the earth as having been created for humanity was the presentation of a finely-argued justification for the removal of intrinsic value from the natural world. It is difficult to avoid noticing that in the absence of God's intentions for humanity, Capito's work allowed no purpose for the existence of Creation. This point will be further addressed in this thesis' conclusions.

4.b Alsatian Society, Divided

This section of the thesis describes social events from 1525 to 1541, reporting on the social conditions within which Capito wrote *Hexameron Dei opus*. With the peasants and their allies having lost the rebellion by the autumn of 1525, most of people in the Upper Rhine Valley experienced the suppression of religiously radical views and a return to orthodox Catholic practices. That the Free Imperial City of Strasbourg, however, avoided this fate may be ascribed to the predominance of Lutheran sympathizers in the city and on the *Rat*,

as well as the city's adroit political manoeuvring during the uprising. Luther's antipathy for the rebels was well-known,⁵¹ and the willingness of Capito, Bucer, and Zell to function as city diplomats to the rebels established the Strasbourg Evangelicals as associated with civil authority and clearly theologically distinct from religious radicals among the rebels.⁵²

The 1525 peasants' defeat had several consequences, socially and culturally. In the northern reaches of the Upper Rhine Valley, authorities co-operated across jurisdictions in restoring the rural *status quo*, as shown by the programme adopted at Hagenau on 7/17 June 1525 by the Emperor, the Bishop of Strasbourg, the Counts of Bitsch and Hanau, and the Free Imperial City of Strasbourg. Initially, a legal structure was established which intended to renew vows of obedience, confiscate the arms of any surviving peasant rebels, control religious worship, forbid the movement of serfs or supervise their movement while they repaired any damages, and to impose a general punitive tax, the *Brandschatzung*. An idea which had been discussed in June found fruition at a second meeting on 29 August/8 September with the establishment of a common police force, to which each partner would contribute twenty knights and the possibility of adding another fifty at the request of the imperial prefect.⁵³ Presided over by Phillip of Baden, a treaty signed on 18/18 September formalized these agreements; its acceptance by rebels in Alsace avoided the extreme levels of violent suppression undertaken in Swabia or Thuringia on the orders of Archduke Ferdinand.

As Bischoff notes, though, disarming peasants was not enough to break them of their disobedience to the desires of the nobility; their independent customs, culture, and identity must also be destroyed. Included among the edicts of 29 August/8 September were strict prohibitions against certain forms of sociability, such as shooting clubs or certain games

51 It was clearly expressed in his publication *Against the Murdering, Thieving Hordes of Peasants*. Luther, Martin: *Wider die Mordischen und Reubischen Rotten der Bawren* (Wittenberg, 1525).

52 Greschat, pp. 64-7.

53 Bischoff, p. 406.

involving the election of a 'king', and limits on others, such as the number of guests at weddings, *Fastnacht* visiting, or baptismal display. Sarcastic or ritual reversals, such as declaring a boy to be Bishop of Strasbourg and seating him in the cathedral, were forbidden; pipes and drums were silenced and dancing was banished. Roman Catholic priests were to be selected and paid by civil authorities and were expected to address their topics in such a way as to inspire subjects towards brotherly love, praise of God, and obedience to temporal authority. Mass was to be offered in Latin, and all the tithes, great and small, were to be regularly collected.⁵⁴

Terms of the same type were imposed on southern Alsace and the Breisgau. For example, at Saint-Hippolyte, a village in the Vosges Mountains southwest of Sélestat, public submission and vows of obedience by the peasants were followed by the surrender of any remaining arms and commands were issued to observe each day of fasting and abstinence, to pay all tithes, and to notify authorities of any who neglected to perform their duties.⁵⁵ This last contributed to the two waves of judicial punishments which swept the southern portions of Upper Rhine Valley, resulting in hangings, drowning, and other means of execution for any prominent rebel who had survived the War, as well as mutilations for lesser offences. The centre of activities was Ensisheim, the Austrian regency's seat of power in the area; Archduke Ferdinand also led, albeit vicariously, a rigorous overhaul of the criminal code, in general rendering penalties more severe.⁵⁶

Alongside the bodily consequences of rebellion, the financial costs were high. The Duke of Lorraine's army pillaged and stole during its visit; prisoners were taken (as many as a quarter of the inhabitants of Marmoutier, for example⁵⁷ and high ransoms demanded. Some of the money given as ransom payments stayed within the region through allocation to

54 Ibid., pp. 411-2.

55 Ibid., pp. 412-3.

56 Ibid., pp. 417-20 and 424-5.

57 Ibid., p. 430.

territorial landowners such as the Archbishop of Wissembourg. Other forms of financial compensation were demanded by the victors, such as the collective fine imposed upon the village of Dettweiler. Among the possessions of Strasbourg, the village included sixty hearths, of which authorities determined all participated in the rebellion in some way; the only exceptions were those widows who had lost their husband before the uprising – and only if they did not have a son among the rebels.⁵⁸ Other authorities, such as William von Hohenstein, Bishop of Strasbourg, levied blanket fines on villages throughout the rebelling areas.

In the southern end of the Upper Rhine Valley, where the Holy Roman Emperor was a significant landowner, punishing fines were also a central means of continuing to subjugate the population. The approach, however, was noticeably more uniform and regimented: after enumerating each house in the cities and villages which were under the direct authority of the house of Austria or their vassals, a six-florin fine per guilty person was exacted by an administrative body specially created for the purpose. The heirs of a dead rebel were equally responsible for paying the fine. Bischoff notes that this process, which was carried out also in the region of Württemberg and elsewhere, represented a true revolution in that it marked the 'uniformization' of territorial income: the same people performed the job against the same criteria, for the single purposes of enriching the prince. Formerly, imperial income from peasants had been mediated by the competence and integrity of regional vassals, but this committee had been established directly by Archduke Ferdinand. Information gained in the census was archived at Ensisheim or Innsbruck and could have been the basis of other demands, but was lost; only the 1527 records pertaining to the city of Masevaux, west of Mulhouse, continue to exist.⁵⁹

Indebtedness in the region, widespread among the poor before the Peasants' War, became

58 Ibid., p. 433.

59 Archive Municipale Masevaux, series EE 4; cited by Bischoff, p. 437.

burdensome to all levels of society afterwards. Agricultural activities were interrupted by the devastating losses of population or by the conscription of labour to repair damages, which made bringing in the hay or gathering grapes for wine difficult to achieve; institutions which depended on revenues from the harvest suffered, such as the Abbeys of Andlau or Neubourg. Their strategies for survival included selling future tithes or parts of their land base while pleading for leniency from their creditors.⁶⁰

Long-term consequences of the Peasants' War for the Upper Rhine Valley include a notable concentration of power in the hands of a single authority: Archduke Ferdinand, Regent of the Austrian hereditary lands of the Hapsburgs on behalf of his brother, Emperor Charles V.⁶¹ However, this was not the only result, and the peasants' defeat was not an unmitigated disaster in the long term. For example, the ambitions of lordship were arrested, as were also those of the authorities of local institutions. The elite, whether religious, civil, or noble, did not receive any new privileges; sovereign authority contented itself with a monopoly of power exercised through legislation and judicial arbitration. This last was translated into such expressions as the 1532 *Constitutio Criminalis Carolina*; known in German as the *Halsgerichtsordnung*, it unified the legal system of the Holy Roman Empire, which until then, had operated haphazardly across jurisdictions. Along with this, intermediate authorities were divested of their powers; serfdom began to erode and disappear. Bischoff notes that an administration began to grow which was less accessible and, therefore, less malleable - a direct ancestor of the modern state.⁶²

What was true for most of the Upper Rhine Valley, though, was not true of the Free Imperial City of Strasbourg. Despite popular unrest in the city, the *Rat* did not rebel, support the rebels, or negotiate a compromise with them, but nor did it contribute to Duke

60 Bischoff, p. 438.

61 Ibid., p. 438.

62 Ibid., p. 453.

Antoine's military victories. After the peasants' defeat, the city escaped direct chastisement from the Empire, showing that passivity during the rebellion had served it well. The tensions within city walls, though, is evident through contradictory behaviour after the rebellion: as a landowner, the city participated equally with other landowners in repressing the population on its rural lands, but Lucas Hackfurt and Katharina Zell (wife of reformer Matthias Zell) were assigned to organize shelter and food for some three thousand refugees from lordly retribution, including rebels, their wives and children, following the decisive battles of 1525.⁶³ The exercise of authority inside city walls was precarious, and as James Stayer notes, refugees in large imperial cities attracted less attention than persons who stayed at home and embarrassed the same magistracy⁶⁴

The reluctance of Strasbourg civil authorities to prosecute or even evict peasant rebels *cum* refugees indicates a certain precariousness in the exercise of authority which can generally be attributed to social upheaval stimulated by the slate of Luther's reforms as carried into the city by printed material and the Strasbourg reformers. As described above, interpersonal conflict within the Strasbourg cathedral chapter, as well as hostility between this body and the Bishop of Strasbourg, combined with popular enthusiasm to create an opportunity for reforming preachers to occupy several of Strasbourg's pulpits. It is not the purpose of this thesis to provide a full description of the progress of the Reformation in Strasbourg; other scholars, such as Thomas A. Brady, Jr., Miriam Ussher Chrisman, and Lorna Jane Aubray have explored the process in depth.⁶⁵ Following the question of social responses to extreme weather event, though, it is worth noticing that an important change introduced to Strasbourg by reformers as their views gained momentum was the 1522 re-

63 Rudolphe W. Heinze, *Reform and Conflict*, Monarch history of the church, IV (Oxford: Monarch Books, 2006), p. 293.

64 Stayer, p. 77.

65 For example, see Brady, *Ruling Class, Regime and Reformation*, Chrisman, *Conflicting Visions of Reform*, Chrisman, *Strasbourg and the Reform*, or Aubrey, *The People's Reformation*.

organization of the welfare system.⁶⁶ This included the establishment of a municipally-administered common funds chest, from which all donations to the poor were to be administered (including those from individual citizens and, tellingly, contributions from cloisters, chapters, and other religious foundations). Distribution of the gathered funds would be overseen by the *Almosenschaffner*, or alms steward, a salaried position reporting to the city magistrates.

The office's first occupant was Lucas Hackfurt, a former priest and native of Strasbourg who had studied theology at Heidelberg. His meticulous weekly records show his developing views of the problems which came before him and provide a description of the social and economic conditions of the city at the time.⁶⁷ While directing a private Latin school in the city, he was one of the earliest Catholic priests to accept Luther's teaching and became publicly vocal about the errors of the Roman Catholic Church. His appointment as *Almosenschaffner*, which he held until his death in 1554, reflects the growing influence of the Strasbourg reformers on the *Rat*.

Hackfurt's capacities were soon put to the test, as harvest failure in 1524 led to famine in the region and a stream of refugees coming to Strasbourg; the Peasants' War of the following year increased the volume to a flood.. The next crisis Hackfurt faced was the dearth of 1529, when unfavourable weather conditions leading to poor harvests were conducive to severe food shortages in the region; shortly after, his views about the degree of responsibility held by Strasbourg to the poor demonstrably changed. While in 1527 he argued that all who appealed to the city should receive succour (foreigners as well as

66 The following paragraphs are based on Miriam Usher Chrisman, 'Urban Poor in the Sixteenth Century: The Case of Strasbourg', in *Social Groups and Religious Ideas In The Sixteenth Century*, Studies in Medieval Culture XIII (Kalamazoo: The Medieval Institute, Western Michigan University, 1978), pp. 59-67.

67 Much of Hackfurt's *Tagebuch* is available in Otto Winckelmann, *Das Fürsorgewesen der Stadt Strassburg*, Quellen und Forchunge zur Reformationsgeschichte (Leipzig, 1922), II, no. 40. See also Brady, *Jacob Sturm*, p. 117, who mentions also marriage law, the religious houses, and public worship as considered appropriate for public administration by the reformers.

resident poor), in 1530 - after the dearth of the previous year – he recommended that foreigners should not be permitted to beg in the city; the *Rat* immediately accepted his advice and by September 1530, had issued the appropriate ordinances.

In 1531, a famine year, Hackfurt further refined his notion of the deserving poor (although this term was not used by him) by developing policy about the *Schultheisbürger*, those quasi-citizens who received alms but no political rights. Framing them as agitators, he recommended that if a *Schultheisbürger* was found begging in the street more than three times, their oath to the city should be revoked on the way to banishment from Strasbourg. The funds of the common chest, he contended, belonged to full citizens of the city, such as people incapacitated by illness, misfortunate youth who needed dowries or apprenticeship fees, or villagers who dwelt in direct possessions of the city. Foreigners who purchased access to the city's alms through becoming a *Schultheisbürger* were diverting money away from those to whom it properly belonged.

Hackfurt's efforts to ameliorate conditions for the poor in Strasbourg, whether indigenous or foreign, took place while much attention was being given to the role of theology in domestic and foreign policy, for the city struggled both to stabilize its religious situation and to align itself with other Protestants against the omnipresent threat of Catholic aggression.⁶⁸ As Lorna Jane Aubray notes, it is clear that the Peasants' War frightened the city council into making concessions to the Evangelicals,⁶⁹ such as restricting the public celebration of mass to the chapels of the four chapter churches or allowing Cathedral and municipal churches to be stripped of works of art.⁷⁰ Like the citizens, though, the members of the *Rat* did not share a uniform religious standpoint, and that it refused to act precipitously was shown in the absence of an absolute prohibition of the mass until 1529

68 These paragraphs concerning 1529 to 1535 are based on Brady, *Protestant Politics*, esp. Chaps. 3, 4, and 5; Brady, *German Histories in the Age of Reformations*, Ch. 11; Greschat, *Martin Bucer*, and Aubray, *The People's Reformation*.

69 Aubray, p. 87.

70 *Ibid.*, p. 40.

and its reluctance to use civil authority to determine theological orthodoxy in Strasbourg. Such willingness to tolerate divergent views proved problematic in 1530, however, when theological views of the Eucharist held by Strasbourg reformers meant the city was refused admission to the Confession of Augsburg, a declaration of reformed doctrine written by Philip Melanchthon for the Imperial Diet, approved by Luther *in absentia*, and submitted to Emperor Charles V by Evangelical champions such as Elector John of Saxony, Landgrave Philip of Hesse, and others. When Charles V suspended restitution suits launched by Catholics against Reformers and engaged in negotiating a treaty with the Protestant powers which would formalize this suspension, that only those who accepted the Confession of Augsburg would be covered by the treaty was a grave threat to Strasbourg's prosperity. Theological compromise on the nature of the Eucharist was demanded of Strasbourg's reformers, which, when achieved, led to Bucer's signature on the Confession of Augsburg in April 1532.

The Diet of 1530, though, had been the place and time when conversations leading to the Schmalkaldic League were held among Reformers. A coalition of Central German rulers with free cities, the explicit principle of a common and exclusive faith, though unsupported by common economic interests or geographic proximity, allowed the league to draw strength from the accumulated sentiment for religious reform in many parts of the Empire.⁷¹ When Charles' negotiations resulted in the Truce of Nuremberg, signed in July 1532, *de facto* toleration of the Lutheran community was extended throughout the Holy Roman Empire. Renewed in 1532 and 1539, the truce provided time for the Lutherans to establish doctrinal order in their church.

In November 1532, Strasbourg's *Rat* accepted a petition from Bucer and Capito to assemble a synod of theologians and city officials the following summer, at which the

71 Brady, *Protestant Politics*, p. 143.

(Lutheran) principles of true Christian doctrine would be articulated. All the preachers and teachers in Strasbourg would be required to commit to these principles; they would be the basis for cross-examination of religious radicals, rural ministers, and any remaining clerics. Martin Bucer wrote the doctrinal framework as sixteen articles, and, although he and Capito denied that the synod was intended to compel belief, Bucer's Sixteen Articles appear to have been written, much like the Nicene Creed, with the purpose of excluding those who could not accept its Lutheran passages. Surviving radicals, such as Melchior Hoffman (imprisoned by the city in May 1533), Caspar Schwenckfeld von Ossig, and Clemens Zyepler (whose radical views had mellowed into something more akin to spiritualism), were summoned to defend their beliefs before members of city council; as anticipated, any who refused to hear the Word of God as interpreted by its Lutheran exponents were expelled or disciplined by the municipal authorities.⁷² For example, Hoffman was returned to prison, where he would die ten years later, Schwenckfeld left the city, to be exiled from it upon his return a year later, and Zyepler continued to garden in the suburb of Robertsau but was refused any opportunity to act as pastor within his community.⁷³ Decisions of the June synod were ratified late October, and on 4 March 1534, the *Rat* declared official doctrine of the city to be the Sixteen Articles and the *Tetrapolitana*, a statement crafted by Bucer and Capito at the 1530 Diet of Augsburg, and, five weeks later, they decreed that dissent from these doctrines would mean exile.⁷⁴ With clear doctrinal guidelines established and with enforcement of that doctrine with civil authorities, the reformers in Strasbourg had achieved important goals.

Nevertheless, Strasbourg's Protestant leaders were keenly aware that external conformity under duress was an inadequate foundation for the Godly city they intended to establish; a vital component of their reformation was an educated populace who would be able to read

72 Kittelson, pp. 195-5.

73 Peter, pp. 442-5.

74 Kittelson, pp. 196-7.

the Gospel for themselves, and thereby find conviction.⁷⁵ Along with the welfare reform described above, the Evangelical clergy urged civil authorities in 1524 and 1525 to assume responsibility for education, and with notable success: on 9/19 February 1526, a School Board was established as a permanent commission of the *Rat*. With three members (one noble, two common, all serving for life), the Board assumed control over existing schools, established a library, founded lectureships in Hebrew, Greek, and rhetoric, created a school treasury from the properties and incomes of former Dominican, Franciscan, and Augustinian convents, and redirected benefices from St. Thomas to the support of teachers. A college for Protestant preachers was established in 1534, by 1535 there were nine elementary schools for boys and six for girls,⁷⁶ and Easter 1539 saw the opening of the *Gymnasium Argentinense*, an advanced Latin school for the sons of the elite.⁷⁷

Under the founding rector Johannes Sturm, the *Gymnasium Argentinense* acquired 'an international reputation for general, not professional, education of a superior kind, and its aims and clientele expanded far beyond Strasbourg's province, region, or political orbit to make it a model of humanist pedagogy for much of the German-speaking world'.⁷⁸ A faculty of ten teachers and eleven or twelve professors was assembled to instruct the youth, among whom mingled the sons of wealthy burghers and young noblemen from West Central Germany, Hungary, Bohemia, Poland, and Prussia.

Boys entered the Gymnasium after five years of life had been completed and remained for nine years. A report from Sturm's chief of staff, Petrus Dasypodius, in 1556 articulates the general curriculum as it had developed: the first three years were devoted to learning the Latin accidence and supported with Cicero's *Letters*; the fourth year saw the introduction

75 Brady, *Protestant Politics*, pp. 116-25.

76 Gerald Strauss, *Luther's House of Learning: Indoctrination of the Young in the German Reformation* (Baltimore and London: The Johns Hopkins University Press, 1978), p. 197.

77 Boasting 475 years of humanist education on its website, the still-extant college is now known as *le gymnase Jean Sturm*. There are some 2000 pupils from kindergarden to the Baccalaureat, for which latter qualification students achieve a 100% success rate. <<http://www.jsturm.fr/>> [accessed 23 November 2014].

78 Brady, *Protestant Politics*, p. 119.

of Greek, with Latin syntax building on previous instruction. Years Five and Six made a study of prosody, illustrated by Virgil's *Eclogues* and Cicero's *De Senectute* and *De Amicitia*, as well as two of Aesop's Fables in Greek. Three of Cicero's orations and the *Aeniad I* and *II* were the focus of Year Seven reading, while the more able pupils wrote verses. The final years featured the study of dialectic, with readings from Virgil, Homer, and Plato. Religious instruction, given on Sunday, consisted of catechism in the younger years and the Gospels and Epistles for the older boys.⁷⁹ Early lecturers at Sturm's school in Strasbourg included Jean Calvin, who taught New Testament interpretation,⁸⁰ Martin Bucer, Caspar Hedio, Paul Fagius, Peter Martyr Vermigli, and Wolfgang Capito, who is known to have lectured on the Old Testament.⁸¹

This section of the chapter has described social conditions and political developments in Strasbourg and Alsace following the 1525 Germany Peasants' War and discussed innovations and programmes introduced by Evangelicals to Strasbourg. Improvements in the city's welfare systems, while long desired by prominent Catholics like Johann Geiler, were pushed through as priorities by the Reformers. The new religious leaders also instigated educational reforms which culminated in the 1538 establishment of the *Gymnasium Argentinense*, a Latin school which likely included *Hexameron Dei opus* in the curriculum.

Conclusion

Conclusions about representations of nature which were acceptable to Evangelicals, along with the appropriate human relationship to it, are not difficult to discern, as Wolfgang

79 John William Adamson, *A Short History of Education*, (Cambridge: Cambridge University Press, 2013; orig. 1919), pp. 160-1.

80 Wulfert Greef, *The Writings of John Calvin: An Introductory Guide*, (Louisville: Westminster John Knox Press, 2008), p. 13.

81 N. Scott Amos, *Bucer, Ephesians and Biblical Humanism: the Exegete as Theologian*, *Studies in Early Modern Religious Tradition, Culture and Society*, 7 (Springer E-book, 2014), pp. 88-9.

Capito made explicit statements about the natural environment in *Hexameron Dei opus* and straightforwardly validated particular behaviour in it. A central part of his exegesis of Genesis 1-11 was based on an elaborate representation of the natural environment as God's created vehicle for human salvation. Capito's view of the appropriate human response to the natural environment was the enthusiastic exploitation of its natural resources, as he concluded that God was pleased with human use of nature for survival and economic benefit. While advising Christians to engage in the natural world for their benefit, they were to turn their inquisitiveness away from speculation about the reasons for events, forces, and processes in nature, and particularly were to avoid the insights and methods for the same which were available from Classical philosophers.

Along with removing spiritual agents as mediators between humanity and God (ie. the saints or the Blessed Virgin Mary), Evangelical theology discredited ritual practices such as rogations, cloud-blessings, or ringing the bells as viable means of protection from catastrophe of any sort. As mentioned in the conclusions to Chapter Three, their disappearance from the public domain could be as easily attributed to radical religious thinkers as to Evangelical; it is difficult to discern which might hold greater responsibility for the end of rogations, cloud-blessings, or protective bell-ringing in Strasbourg, but it is certain the *Rat's* ban on processions in 1529 was simply a formal gesture. From Capito's perspective, as expressed in *Hexameron Dei opus*, orthodox Christian theology could no longer accept the view of stress from the natural sphere of causation as possibly including demonic forces; instead, God's will was presented as directly responsible for all such events. By removing other supernatural actors from agency over nature, Capito and fellow Evangelicals left little option for succour except prayer and human compassion.

Capito's exegesis on Genesis 1-11 was published in a cultural context where Lutherans were establishing a new conceptual framework for a reformed Christian life and salvation,

one within which certain social initiatives were justified. In Strasbourg these initiatives included the assumption of control of the city's educational system and the creation of a new institution of higher education, Sturm's *Gymnasium Argentinense*. They also included a thorough reform of the welfare system. While welfare reform had been a priority of Catholic leaders such as Johann Geiler, the emphasis given to it by Strasbourg Reformers had results which included *Rat* assuming control of the city's welfare chests and the appointment of a municipal welfare officer. Was acceptance of welfare reform and the assumption of responsibility for it by municipal authorities part of the consequences of the theological innovations introduced by Evangelicals to the city, of which Capito's *Hexameron Dei opus* was an example? In other words, did the new theological views, which included a new representation of the natural world and the appropriate human relationship to it, stimulate greater social responsibility for the poor and refugees? If so, and evidence suggests that this may be the case, the prioritization of relief for the poor and indigent by the Strasbourg Reformers may be interpreted today as an adaptive response within the cultural sphere of causation to increases in that demographic, responsibility for which increase was partly due to weather-related harvest failure.

A further observation of Capito's *Hexameron Dei opus* is the manner in which Capito's comments support Lynn White, Jr.'s thesis that Western Christianity is the intellectual and religious foundation of the current environmental crisis (see Introduction, note 39). Capito regularly repeated his view that God created the world for humanity's salvation and well-being, with similar comments articulating his belief that humanity's exploitation of nature was God's will. Additional research is required to identify further developments of this Evangelical perspective on the natural environment.

CONCLUSIONS

This doctoral research project has described almost six decades of weather conditions, examined the work of a handful of individuals for the manner in which they represented nature, and outlined social events from the late fifteenth and early sixteenth centuries in Strasbourg and Alsace with an emphasis on the role of the weather in them. *Die Emeis*, a collection of sermons by Johann Geiler von Kaysersberg, *Wetter Büchlin* by Leonhard Reynmann, *Ein Fast schon büchlin* from Clemens Zyegler, Article Four from the peasant army's *XII Articles*, and *Hexameron Dei opus* by Wolfgang Capito were explored in some depth to identify and explore similarities and differences in their religious representation of the natural environment and the appropriate human relationship to it.

Although establishing a relationship between the weather events of the Spörer Minimum and the social and cultural turbulence of Alsace from 1509 to 1541 is difficult and tenuous, evidence suggests the existence of the first and indicates the possibility of the second.

While there is a strong similarity among the representations of nature as articulated by these theologians selected from the Catholic, radical, and Evangelical communities, differences among them contributed to a transformation of the manner in which Strasbourgeois understood and coped with challenges from the natural environment. All three representations of nature were explicitly Christian and borrowed authority from Scripture. However, different representations of God's role in natural events, processes, and roles distinguished Catholic and Evangelical views, with the latter ascribing a much stronger role to divine will. Moreover, theological views from the latter two communities explicitly represented nature as created for human exploitation, which, in the context of the model of socioeconomic metabolism, would culturally enhance human opportunities for metabolic intake.

With respect to the role of the weather in the social upheaval of the late fifteenth and early sixteenth centuries, a careful consideration of the incidence of weather-caused harvest failure with plans for rebellion or its outbreak in Alsace between 1492 and 1525 shows a strong correlation. This relationship is seen in the following summary: harvest failure due to bad weather conditions in 1491 and 1492 (the last causing famine) was followed by plans of rebellion in spring 1493; harvest failure due to the same in 1500 and 1501 (the last again causing famine) was again followed by schemes for rebellion in spring 1502; poor harvests due to severe winter cold and summer flooding in 1510 and 1511 were followed by rebellion in spring 1513, harvest failures due to bad weather conditions created famine in 1515 and 1516 and were followed by rebellion in spring 1517; poor harvests from low temperatures and storms in 1524 led to famine in Alsace, followed by the Peasants' War in spring 1525. Weather conditions were clearly not the only factor involved, as institutionalized and deepening social inequality played its part in assuring that the economic repercussions of harvest failure were felt most keenly by the poor. Nevertheless, social inequality on its own did not inspire rebellion; this is proven by the years of good weather in the region, during which social inequality was unrelieved. Plans or outbreaks of armed rebellion followed poor weather conditions, as their economic consequences imposed unbearable stress on the more vulnerable people in society.

Harvests failed again due to foul weather conditions in 1529, 1531, 1534, 1535, 1540, and 1541, leading to famine in 1531, 1535, and dearth in 1541. However, social conditions had changed; the human and financial resources needed for rebellion were no longer available and peasant culture was under assault. As well, provoked by the Peasants' War, Imperial authority developed a stronger presence in the region and introduced a rationalized imposition of a system of fines for the benefit of the crown. The policy response by authorities to rebellions provoked in part by repeated and long-term material insecurity

caused by destructive weather events characteristic of the Spörer Minimum may have contributed to the growth of the nation-state, a long-term process whose beginning was just underway in the early sixteenth century.

Regarding similarities and differences in the religious representations of nature among the authors studied in this research project, there are findings of both common ground and dramatic differences among Catholic, radical, and Evangelical views. This thesis necessarily explored the writings of specific individuals, but it is important to remember that these individuals were respected in their communities at least partially for the views they expressed, which provides the basis of a fair assumption that these views were shared by others. It is equally important to remember that when considering prevalence of these views in Strasbourg and Alsatian culture, while they have been presented discretely and in chronological order, this is an artificial separation: such divergent representations of and approaches to nature would have been contested among people sharing the same time and space. The views of the radicals were developing in rural parts of Alsace while Catholic preachers filled the pulpits of local churches; during the heavy drought of 1540, a year after Capito published *Hexameron Dei opus*, Catholics in Guebwiller gave a mass for rain, as well as a separate mass for a good harvest of wine.¹ Although each group sought to impose its vision of a Godly society throughout Alsace, none were able to achieve the full control of the social order they desired during this period of study. A common agreement about the proper social order was not realized.

Despite that, all three text sources represent the natural environment as organized by a common principle: divine order. Order is a basic principle found in all human cultures, as it is a necessary element of developing a coherent worldview. It is not unexpected to find that these men represented the world as an ordered place; of greater interest are the differences

1 Mossmann, p. 225.

in the type of order each offered to his audience.

According to Johann Geiler, God's order was established in the design and vivification of each creature, which was then set free to obediently fulfil its glorious purpose. Although God's ultimate authority meant all events occurred with His permission and for the ultimate good of humanity, Geiler was also prepared to recognize that some troubles, such as attacks by wolves, could be due as much to God's lupine design as to supernatural intervention, whether angelic or diabolic. These last could disrupt the integrity of God's design for benign or nefarious purposes, and if the latter were troubling to humans, superior authorities, both secular and/or spiritual, could be summoned to restore order.

Geiler's representation of the natural world shows an unmistakeable similarity to the feudal social order, where an appeal to a superior power against the transgressions of an intermediate power would have been instantly recognizable by his audience as the traditional defence against external danger, and, in that culture, the predominant way of (re)establishing order.

Asserting a divinely-ordered hierarchy as the structure of the natural world may have been a strategy by Geiler to support the social hierarchy as equally divinely ordered, although it is difficult to confirm such speculation. He regularly advised his audience to 'be like the ant', albeit in a moral sense. However, the conceptual distance between being humble before one's spiritual Lord in heaven and being humble before one's temporal Lord on earth is not that great. While Geiler did not bluntly state 'Oh, you peasants, be as the humble ant and remain uncomplaining in your lowly position at the bottom of the social order!', it is noteworthy that he asserted a hierarchical natural order when Alsace was regularly experiencing armed rebellion against the social order.

Order was equally important to Clemens Zyepler in his *Ein Fast Schon Büchlin* and to the peasant authors of the *XII Articles*, but the structure of the order they valued was

significantly different from Geiler's. In his pamphlet discussing the Eucharist, Zyegler also recognized God as exercising ultimate authority over Creation, but portrayed God's order in an egalitarian agricultural community. In this community, individuals may guide each other towards righteousness, as one would guide domestic livestock back to its owner, but without a commensurate rise in social status. Such egalitarianism was limited to humanity and, indeed, his representation of nature was focused so exclusively on agriculture and its accompanying activities that it is difficult to assess his views of the environment beyond the farm. However, in light of Zyegler's statement that a man is better than a cow, it might be safe to assume that he accepted a hierarchical order of the natural world as God's intention, with an egalitarian human society tucked within it.

That such an understanding of a Godly order was shared widely in peasant communities throughout southwestern Germany is implied by Article 4, as written by the Swabian rebel representatives, distributed throughout the area of the 1525 rebellion, and repeatedly presented to authorities. Once again, final authority is ascribed to God; the authors portrayed God's preferred social order as one found in an interdependent and neighbourly agricultural community. They also called upon temporal Lords to acquiesce in restoring Godly order by allowing peasants to hunt wild animals which trespassed onto croplands. In this view of the environment, wilderness and wild animals had a place but it was outside the order God intended for humanity. This perspective is agro-centric, and hints towards a view of wilderness as intrinsically without value, although peasants were reputedly quick to ignore their farms and turn to the wilderness for their material needs when possible. The question of peasant views of the natural environment would benefit from further research with a wider geographical and temporal scope.

It is not as challenging to discover Wolfgang Capito's appreciation of hierarchical order in Creation, thanks to the many times he repeated his view that mankind was given full

authority over the earth and its disposal by God. However, the fully ranked hierarchy reflected in the concept of the Great Chain of Being was sharply truncated in *Hexameron Dei opus*, as many of the supernatural beings Geiler had asserted as mediators between humanity and God disappeared from the Evangelical view of Creation.. The devil and his demons, as well as most saints and many angels, were removed from explanations of natural events, processes, and forces; the communal rituals performed as an appeal to such mediators were prohibited in reformed Strasbourg.

While Capito's perception of the hierarchical order may have had fewer rungs than Geiler's, his interpretation of Genesis made the human position in it much more powerful. That is, any intrinsic value which may have been ascribed to the environment, if for no other reason than having shared in the moment of Creation, was removed in his emphatic re-positioning of human salvation as the single purpose for which the earth was created. Also, his expansions upon humanity's divinely-ordained dominion over the earth included an articulate justification for a ceaseless exploitation of the natural world; as long as there are human beings on the earth, God's will rendered the earth available to meet humanity's needs through agriculture, mining, or other activities. It may be possible that, with this view, Capito sought to inspire the conversion of radical believers to Evangelical theology by integrating an approach to the natural world which would likely be received with favour by peasants.

There are other similarities among the authors included in this thesis, such as their common use of Scripture as the basis of their exhortations and their fervent desire to convince their audience of the righteousness of their perspective. Such commonalities, though, are a feature of the selection criteria established at the beginning of this project, particularly the period and location. The years between 1509 and 1541 in Alsace saw open conflict among Christians over different interpretations of the Bible and winning the

approbation of others became a central goal among Scriptural exegetes. Turning to the text for authority was an essential element for achieving their aims, with selection of the strongest passage crucial to a successful argument.

While the role of weather in social events from 1492 to 1541 may be seen, the interactive, hybrid model of socioeconomic metabolism reminds us that culture is an autonomous sphere of activity, which means that responses from within this system of recursive communication will arise independently of the natural environment. Nevertheless, the two spheres are interactive and the possibility of a relationship between them is available.

One place where such a relationship may be inferred is in the eagerness with which poorer Alsatians greeted Luther's religious insights. His re-conceptualization of Christianity served to offer a culturally valid alternative to the status quo, in that initially he confronted the social structures which had developed in Catholic Europe without betraying the principles upon which they stood. The impossible vice by which less fortunate Alsatians were frequently oppressed, as the Dancing Plague of 1518 demonstrated, involved the cultural authority of religious representatives who exerted stiff financial pressures within a hierarchical social system. When confronted by a diminished ability to access the material resources necessary to meet those demands, due to weather-related harvest failure, for example, the combination of cultural, social, and natural pressures was extreme.

The nature and direction of Luther's theological innovations could not have been anticipated. However, once the conceptual foundations of Luther's insights had been grasped, the opportunities they held were rapidly exploited by those with most to gain from changes in the status quo. Was this willingness by peasants and their allies to abandon the security of Catholic orthodoxy for reform theologies partially a consequence of repeated experiences of weather-related economic hardship? Evidence about the timing of rebellions, summarized earlier, suggests it was a contributing factor.

Another place where a relationship between the unsettled weather of late fifteenth and early sixteenth century Alsace may have influenced changes in the cultural representation of nature may be seen in Capito's great appreciation of the role of natural resource exploitation for human welfare. In Alsatian society of the early sixteenth century, battered by the unreliable weather conditions typical of the Spörer Minimum, religious views which expressed explicit admiration for human exploitation of the natural world may have been warmly received. The relatively brief time frame of this research prevents an exploration of the spread of Capito's views and the consequences, if any, for the work undertaken by those who may have entertained them.

Whether or not changes in the religious representation of the natural world were caused by stress from the natural sphere of causation, theological developments in Strasbourg affected culturally-meaningful programmes intended to control the environment, particularly in ritual attempts to direct it. Rogations, prophylactic bell-ringing, and blessings of destructive weather vanished from the community, to be replaced with Evangelically-approved methods of approaching God (who remained the ultimate authority over atmospheric conditions), such as Capito's suggestions of fasting or prayer. Further research would be needed to assess the role of these theological changes in future work done in the environment.

This research engaged at the outset with the arguments of Max Weber and Lynn White, Jr. and now observes that the hypothesis of the first is challenged, while that of the second finds support. Max Weber's view of Protestantism as a rational religion whose explosion onto the European stage irretrievably shattered the magic-riddled miasma of late medieval Catholicism is not upheld here. Geiler's sermons show him to have exercised a weak form of rationality, in that he demonstrated a fully rational approach to the natural world, despite holding irrational beliefs about it. That is to say, Geiler was rational in his approach to a

natural world which, for him, included the existence of spiritual beings along with birds, trees, and lions. Based upon Classically-based natural philosophy, Catholic doctrine, and the application of logic to theological issues, his representation of the natural environment was consistent and incorporated a wide range of possible causes for natural events, forces, and processes, some of which were spiritual and some material. Unfortunately, the limited selection of material available from peasant culture does not permit an assessment of their views against Weber's hypothesis at this time.

Wolfgang Capito also demonstrated a weak form of rationality, in that his representation of the natural world was also consistently rational in the context of irrational beliefs held about it. Capito's views were extrapolated in a rational fashion from his understanding of Scripture, where God's omniscience and omnipotence support His will as the primary cause of all events, forces, and processes in the environment. It could be suggested that Capito's rationality was a little weaker than Geiler's, due to his recommendation that humanity avoid speculation about the natural environment and his insistence that natural events, forces, and processes were perform a moral lesson from God. With advice like this, he discouraged the development of a rational understanding of the natural environment.

Lynn White, Jr.'s indictment of Western Christianity as instrumental in the current environmental crisis finds strong support in this research project, particularly in Wolfgang Capito's *Hexameron Dei opus*. Capito's reiterated assertions that God bestowed the natural world upon humanity for our use are incriminating articulations of an approach to the environment whose limitations are arguably within sight today. Questions arise, though, about Capito's motivations for this approach, and it can be speculated that it was an attempt to engage a large peasant community whose disaffection with the Reformation was visible once it was clear their need for social justice would be unmet. However, if the volume was part of the curriculum for students of Jakob Sturm's Gymnasium Argentinense, peasants

were not its intended audience. That it was written in Latin would have diminished its popular audience even further, rendering an understanding of Capito's motivations for this attitude once more opaque.

Unfortunately, limitations of time and energy on this doctoral research project prevented the inclusion of John Calvin's *Institutio Christianae Religionis* among the texts under analysis. As well as becoming closely engaged with the Evangelicals of the Free Imperial City, teaching at Johannes Sturm's Protestant Gymnasium, and ministering to the community of French Huguenot refugees, Calvin wrote the second and third Latin drafts of his *Institutio* while living in the city and completed its first translation into French. An exploration of the representation of the natural environment in his influential work would complete the research trajectory; its absence leaves open another avenue for further research.

BIBLIOGRAPHY

Primary Sources

- Anonymous, *Ein geschriben Buch oder Cronik von der Statt Strassburg, item auch etwas von Augsburg und Baiern von Paulus Hector Mair, 1334-1513*, Augsburg Stadtarchiv, Chronik Nr. 3 (formerly Schätze 126, Chronik Nr. 55)
- Aquinas, Thomas, *Compendium theologiae*, trans. Cyril Vollert, S.J. (St. Louis & London: B. Herder Book Co., 1947)
- Aubrion, Jehan, *Journal de Jehan Aubrion, bourgeois de Metz, avec sa continuation par Pierre Aubrion, 1465-1512*, ed. by Lorédann Larchey (Metz: F. Blanc, 1857)
- Brant, Sebastien, *Les Annales de Sébastien Brant*, ed. by Léon Dacheux, *Fragments des Anciennes Chroniques d'Alsace*, III (Strasbourg: R. Schultz, 1892)
- Büheler, Sébald, *La Chronique Strasbourgeoise de Sébald Bühelers*, ed. by Léon Dacheux, *Fragments des Anciennes Chroniques d'Alsace*, I (Strasbourg: Schultz, 1887)
- Capito, Wolfgang, *Hexameron Dei opus explicatum à Wolphango Fa. Capitone Theologo* (Strasbourg: Vuendelinum Rihelium, 1539)
- *Institutiuncula in Hebream linguam. Autore Volphango Fabro Professor Theologiae* (Basil, 1516)
- *The Correspondence of Wolfgang Capito*, ed. and trans. Erika Rummel, Vol. 1 (Toronto: University of Toronto Press, 2005)
- Cremonensis, Sicardus, *Sicardi Cremonensis episcopi Mitralis de officiis*, ed. Gábor Sarbak and Lorenz Weinrich (Turnhout: Brepols, 2008), col. 368
- Dacheux, Léon, ed., *Fragments de Diverses Vieilles Chroniques*, *Fragments des Anciennes Chroniques d'Alsace*, IV (Strasbourg: Imprimerie Strasbourgeoise, 1901)
- Der Oberrheinische Revolutionär, *das Buchli der hundert Capiteln mit XXX Statuten*, ed. Klaus H. Lauterbach (Hannover: Hahn, 2009)
- Durand, Guillaume, *Rationale divinatorum officiorum* (Rome, 1477)
- Franck, Sebastian, *Chronica, Zeytbuch vnd geschychtbibel von anbegyn biß inn diß gegenwertig MDXXXI. jar : Darin beide Gottes vnd der welt lauff, hendel, art, wort, werck, thun, lassen, kriegem, wesen vnd leben ersehen vnd begriffen wirt...* (Straßburg: Balthassar Beck, 1531)
- Gebwiler, Hieronymus, *Die Straßburger Chronik des elsässischen Humanisten Hieronymus Gebwile*, ed. by Karl Stenzel (Berlin and Leipzig: Walter de Gruyter, 1926)
- *Schlettstadter Chronik des Schulmeisters Hieronymus Gebwiler*, ed. by Joseph Geny

(Schlettstadt: Druckerei H. Marchal, 1890)

Geiler von Kaysersberg, Johann, *Die ältesten Schriften Geiler von Kaysersberg*, ed. by Léon Dacheux (Freiburg im Breisgau: Herderische Verlagshandlung, 1877)

-- *Die Emeis*, ed. by Johannes Pauli (Strasbourg: Johann Grüninger, 1517)

-- *Fragmenta passionis dōmini nostri Jesu Christi*, ed by Jacob Otther (Strasbourg: Mathias Schürer, 1508)

-- *Nave penitentie*, ed. by Johannes Otther (Augsberg: Augusta vindelicorum, 1511)

-- *Sermones et varii tractates*, ed. by Peter Wickgram (Strasbourg: Johann Grüninger, 1518)

Gerung, Niklaus, 'Des Kaplans Niklaus Gerung genannt Blauenstein Fortsetzung der Flores Temporum Niklaus 1417-1475', in *Basler Chroniken*, Historische Antiquarische Gesellschaft, VII (Basel (ed.), Hirzel, Leipzig, 1915). Accessed via <<http://digital.ub.uni-duesseldorf.de/ihd/content/pageview/661111>> [Accessed 22 November 2012]

Gryson, Roger, ed., *Biblia Sacra iuxta vulgatam versionem*, 4th edn (Stuttgart: Deutsche Bibelgesellschaft, 1994)

Herzog, Bernhard, *Chronicon Alsatiae. Edelsasser Cronick unnd außfürliche beschreibung des vntern Elsasses am Rheinstrom, auch desselben fürnemer Stätt, als Straßburg, Schletstatt, Hagenaw, Weissenburg, und anderer der enden gelegener Stätt, Schlösser, Clöster, Stifft, Märckt, Flecken vnd Dörffer. Als auch der Landgraffschafft, vn Bisthumbs Straßburg gehaber Landgraffen, Bischoffen, sampt ermeldten Lands Fürstenthumben, Graff vnd Herrschafften, Adenlicher, vnd Burgerlicher Geschlechter, jhrer Genealogien, Stämmen, geburts Linien, Wappen vnd Cleinodien. Darinn jhre her vnd ankunfften, leben, handlung, thaten, auch darinne von anfang dessen biß auff gegenwertiges 1592. Jar gedenckwürdigen vorgangene geschichten ... beschrieben, vnd ... an tag gegeben worden* (Strasbourg: 1592)

Jacques de Gottesheim, 'Les Éphémérides de Jacques de Gottesheim: Docteur en Droit, Prébendier du Grand-Choeur de la Cathédrale (1524-1543). Fragments publiés pour la première fois et annotés', ed. Rodolphe Reuss, *Bulletin de la Société pour la Conservation des Monuments Historiques*, II^e Serie, XIX, bk. I (Strasbourg: R. Schultz & Cie, 1898), 261-81

Kleinlavveln, Michaelis, *Strassburgische Chronick, Oder Kurtze Beschreibung von ankunfft, Erbaw: und Erweiterung der Statt Strassburg, wie auch vom leben, Regierung, und Absterben der Bischoffen daselbsten: So dan Von verenderu(e)g dess Regiments, den ersten Statt: und Ammeistern, buss auff die jitz Regierende herren, und anderen denck, wu(e)rdigen handeln, die sich bey diser Statt von Jahr in Jahr in Fridens (et) unnd Krieg: zu Thewren: und Wolfeilenzeiten, in Geist: und Weitlichen sachen zugetragen. Mit fleiss zusammen gebracht Durch einen Liebhaber der Teutschen Pottery* (Strasbourg: Johann Carolo, 1625)

- Knebel, Johannis, 'Johannis Knebel capellani ecclesiae Basiliensis diarium. Hans Knebels, des Kaplans am Münster zu Basel, Tagebuch. Sept. 1473 – Jun. 1476', in *Basler Chroniken*, eds. Wilhelm Vischer and Heinrich Boos (Leipzig: S. Hirzel, 1880), 1-436
- Lebeau, Jean, and Jean Marie Valentin, ed., 'La commune d'Ostwald au Magistrat de Strasbourg [1510]' in *L'Alsace au siècle de la Réforme: 1482-1621: Textes et Documents* (Nancy: Presses universitaires de Nancy, 1985), pp. 87-90
- Luther, Martin, *Teütscher Adel. An den Christenlichen Adel teütscher Nation: von des Christenlichen stands besserung* (Strasbourg: Martin Flasch, 1520)
- *Von weltlicher Oberkeit wie weit mann yhr gehorsam schuldig sey* (Strassburg: Wolfgang Köpfel, 1523)
- *Wider die Mordischen und Reubischen Rotten der Bawren* (Wittemberg, 1525).
- Melanchthon, Philip, *Corpus reformatorum Philippi Melanthonis opera quae supersunt omnia*, ed. C.B. Bretschneider and H.E. Bundseil, vol 10 (Halle, 1834-52; Brunswick, 1853-60)
- Meyer, Johann Jacob, *La Chronique Strasbourgeoise*, ed. Rodolphe Reuss (Strasbourg: J. Noiriel, 1873)
- Mone, Franz-Josef, ed., *Quellensammlung der badischen Landesgeschichte*, 1 and 2 (Karlsruhe: C. Macklot, 1848)
- Mossmann, Xavier, ed., *Chronique des dominicains de Guebwiller* (Guebwiller: G. Brückert; Colmar: L. Reiffinger; Strasbourg: Schmidt et Grucker, 1844)
- Nider, Johannes, *Incipit prologus formicarii* (Köln: Ulrich Zell, 1473)
- Reynmann, Leonhard, *Von warer erkanntnus dess wetters also das ain yeder er sey geleert oder ungeleert durch alle natürliche anzaigung die aenderung des wetters aigentlich und augenscheinlich wissen und erkennen mag. Getzogen und gegründet auß den regeln der hochberuembsten astrologen und dartzu durch die teglichen erfahrung (die ain maysterin ist aller kunst) bewert* (Augsburg: Silvan Otmar, 1515)
- Saladin, Johann Georg, *Die wiedergefundene Strassburger Chronik des Johann Georg Saladin*, ed. by Aloys Leonhard Ruppel (Strasbourg: Dr. u. Verlagsanst., 1908).
Schröder, Karl Gustav Theodor, *Die Chroniken der oberrheinischen Städte: Straßburg*, ed. By Karl Hegel, 2 vols, Die Chroniken der deutschen Städte vom 14. bis ins 16. Jahrhundert, 8-9 (Leipzig: Hirzel, 1870-1)
- Specklin, Daniel, *Les Collectanées de Daniel Specklin, chronique Strasbourgeoise du Seizième Siècle*, ed. by Rodolphe Reuss, *Fragments des Anciennes Chronique d'Alsace*, II (Strasbourg: Librairie J. Noiriel, 1890)
- Stauffenberger, Frère Martin, 'Les Annales des Frères Mineurs de Strasbourg, rédigées par le frère Martin Stauffenberger, économe du couvent (1507-1510)', ed. Rodolphe

Reuss, *Bulletin de la Société pour la Conservation des Monuments Historiques*, II^e Serie, 18 (Strasbourg: R. Schultz & Cie, 1897), 295-314

Stedel, Johannes, *Die Strassburger Chronik des Johannes Stedel*, ed. by Paul Fritsch (Strasbourg: Sebastian Brant-Verl, 1934)

Steinhöwel, Heinrich, and Jakob Köbeln, *Beschreibung einer Chronic Von anfang der Welt bisz auff Keyser Friderich den Dritten knrtz Suñirt vor Jam durch ... Hern Heinrichen Steinhoewel Doctorn Stattartz zu Vlm auszgezogen vnnnd gemacht. Vnnnd ietzo durch den Erfarnen H. Jacob Koebeln Stattschreiber zu Oppenheim an etlichen Ortenn gemeret vnd auff Keyser Carlen den V. erstreckt. Mit anhang beschreibung der zeit Jsidori* (Franckfurt am Meyn: Christian Egenolff, 1531), [VD16 S 8811]

Stoltz, Hans, *Die Hans Strol'sche Gebweiler Chronik, Zeugen-bericht über den Bauernkrieg am Oberrhein*, ed. Wolfram Stoltz (Freiburg-am-Breisgau: Steinmann, 1979)

Strasbourg, Archives de la Ville et de l'Eurométropole de Strasbourg (AVES), Mandat et Réglements 1 MR 2

Trausch, Jacob, 'Strassburgische Chronick', in *Les Chroniques Strasbourgeoises de Jacques Trausch et de Jean Wencker*, ed. by Léon Dacheux, Fragments des Anciennes Chroniques d'Alsace, III (Strasbourg: Imprimerie Strasbourgeoise and R. Schultz, 1892)

Tschamser, P. F. Malachias, ed., *Annales oder Jahrs-Geschichthen der Baarfüferen oder Minderen Brüdern S. Franc. ord. inßgemein Conventualen gevannt, zu Thann*, 2 vols (Colmar: Hoffmann, 1864)

Twinger von Königshofen, Jacob, *Chronik des Jacob Twinger von Königshofen 1400 (1415)*, in *Die Chroniken der oberrheinischen Städte. Straßburg*, ed. by Karl Gustav Theodor Schröder and Karl Hegel, Die Chroniken der deutschen Städte vom 14. bis ins 16. Jahrhundert, II (Leipzig: S. Hirzel, 1871)

Wencker, Jean, 'Chronik und Zeitregister der Statt Strassburg', in *Les Chroniques Strasbourgeoises de Jacques Trausch et de Jean Wencker*, ed. by Léon Dacheux, Fragments des Anciennes Chroniques d'Alsace, III (Strasbourg: Imprimerie Strasbourgeoise and R. Schultz, 1892)

Wimpfeling, Jakob, *Iohannis Keiserspergii Theologi doctrina vitaeque probatissimi primi Argentinensis ecclesiae praedicatoris mortem planctus et lamentation cum aliquali vitae suae description et quorundam epithaphiis* (Jakob Köbel, 1510)

– *Briefwechsel*, ed. Otto Herding and Dieter Mertens. 2 vols, *Jacobi Wimpfelingi Opera Selecta*, 3 (Munich: Wilhelm Fink, 1990)

Zyegler, Clemens, *Ein Fast schon büchlin in welchen yederman findet ein hel-len und claren verstandt von dem leib und blüt Christi* (Strasbourg: Johanem Schwan(?), 1525)

Secondary Sources

- Adamson, John William, *A Short History of Education* (Cambridge: Cambridge University Press, 2013; repr. Cambridge: University Press, 1919)
- Akbari, Suzanne, *Idols in the East: European Representation of Islam and the Orient, 1100-1450* (Ithaca: Cornell University Press, 2009)
- Algazi, Gazi, 'Lords Ask, Peasants Answer: Making traditions in Late Medieval village assemblies', in *Between History and Histories: The Making of Silences and Commemorations*, eds. Gerald Sider and Gavin Smith, Anthropological Horizons Series (Toronto: University of Toronto Press, 1997), 199-229
- Allheilg, Martin, ed., *Artisans et ouvriers d'Alsace*, Publications de la Société Savante d'Alsace et des Régions de l'Est, IX (Strasbourg: Librairie Istra, 1965)
- Amos, N. Scott, *Bucer, Ephesians and Biblical Humanism: the Exegete as Theologian*, Studies in Early Modern Religious Tradition, Culture and Society, VII (Springer E-book, 2014)
- 'Strangers in a Strange Land: The English Correspondence of Martin Bucer and Peter Martyr Vermigli', in *Peter Martyr Vermigli and the European Reformation: Semper Reformanda*, ed. Frank A. James, Vol 115 of *Studies in the History of Christian Traditions* (Leiden: Brill, 2004), 26-46
- Aristotle, *Metereologica*, trans. by H.D.P. Lee (Cambridge, MA: Harvard University Press, 1952)
- Arnold, Martin, *Handwerker als theologische Schriftsteller: Studien zu Flugschriften der frühen Reformation (1523-1525)*, Göttinger theologische Arbeiten, 42 (Göttingen: Vandenhoeck & Ruprecht, 1990)
- Aubray, Lorna Jane, *The People's Reformation: Magistrates, Clergy, and Commons in Strasbourg, 1500-1598* (Oxford: Basil Blackwell, 1985)
- Bagchi, David, 'Germany and the Lutheran Reformation', in *The European Reformations*, ed. by Alec Ryrie (Basingstoke: Palgrave MacMillan, 2006), pp. 13-35
- Bailey, Michael D., 'The Age of Magicians: Periodization in the History of European Magic', in *Magic, Ritual, and Witchcraft*, 3 (2008), pp. 1-28
- *Battling Demons: Witchcraft, Heresy, and Reform in the late Middle Ages* (University Park: The Pennsylvania State University Press, 2003)
- Barry, Roger G., *Mountain Weather and Climate*, 2nd edn (London: Routledge, 2013)
- Bartlett, Robert, *The Natural and the Supernatural in the Middle Ages*, Wiles Lectures at the Queen's University of Belfast 2006 (Cambridge: Cambridge University Press, 2008)

- Bauer, Gerhard, 'Johannes Geiler von Kaysersberg (1445-1510) und seine Hexenpredigten in der Ameise', in *Stregoneira e streghe nell'Europa moderna*, ed. by Giovanna Bosco and Patrizia Castelli (Pisa and Rome: Pacini, 1996), pp. 133-67
- Baylor, Michael G., ed. and trans., *The Radical Reformation* (Cambridge: Cambridge University Press, 1991)
- Behringer, Wolfgang, 'Climate Change and Witch-Hunting: the Impact of the Little Ice Age on Mentalities', *Climate Change* 43 (1999), 335-51
- *Kulturgeschichte des Klimas* (Munich: C.H. Beck oHG, 2007); translated into English and published as *A Cultural History of Climate* (Cambridge: Polity Press, 2010)
- Bell, Catherine, 'Constructing Ritual', *Readings in Ritual Studies*, ed. by Ronald Grimes (New Jersey: Prentice Hall, 1996), pp. 21-33
- Bell, W.T., and Astrid E. Ogilvie, 'Weather compilations as a source of data for the reconstruction of European climate during the medieval period', *Climatic Change* 1 (1978), 331-48
- Berger, Jean-Pierre, Bettina Reichenbacher, Damien Becker, Matthias Grimm, Kirsten Grimm, Laurent Picot, Andrea Storni, Claudius Pirkenseer, Christian Derer, and Andreas Schaefer, 'Paleogeography of the Upper Rhine Graben (URG) and the Swiss Molasse Basin (SMB) from Eocen to Pliocene', *International Journal of Earth Sciences*, 94 (2005), 697-710
- Bietenholz, Peter Gerard, and Thomas Brian Deutscher, ed., *Contemporaries of Erasmus: A Biographical Register of the Renaissance and Reformation*, 3 vols (Toronto: University of Toronto Press, 1985)
- Bischoff, Georges, *La guerre des Paysans: L'Alsace et la révolution du Bundschuh 1493-1525* (Strasbourg: La Nuée Blueue, 2010)
- Blackburn, Bonnie, and Leofranc Holford-Strevens, *The Oxford Companion to the Year: An Exploration of Calendar Customs and Time-reckoning* (Oxford: Oxford University Press, 1999)
- Blickle, Peter, *From the Communal Reformation to the Revolution of the Common Man*, trans. by Beat Kümin (Leiden: Brill, 1998)
- 'Peasant Revolts in the German Empire in the Late Middle Ages', trans. by Cathleen Catt, *Social History*, 4 (1979), pp. 223-39
- *The Revolution of 1525: The German Peasants' War from a New Perspective*, trans. By Thomas A. Brady, Jr. and H.C. Erik Midelfort (Baltimore and London: The John Hopkins University Press, 1985)
- Bloch, Marc, *The Historian's Craft*, trans. Peter Putman (Manchester: Manchester University Press, 2010; repr. Alfred A. Knopf, 1954)

- Böhm, François Joseph, *Description nouvelle de la Cathédrale de Strasbourg et de sa fameuse tour* (Strasbourg: J. Kürsner, 1743)
- Brady, Thomas A., Jr., *German Histories in the Age of Reformations: 1400-1650* (Cambridge: Cambridge University Press, 2009)
- *Protestant Politics: Jacob Sturm (1489-1553) and the German Reformation* (New Jersey: Humanities Press International, 1995)
 - *Ruling Class, Regime and Reformation at Strasbourg, 1520-1555* (Leiden: Brill, 1978)
 - "'You Hate Us Priests": Anticlericalism, Communalism, and the Control of Women at Strasbourg in the Age of the Reformation', in *Anticlericalism in Late Medieval and Early Modern Europe*, ed. Peter A. Dykema and Heiko A. Oberman (Leiden: Brill, 1993), pp. 167-208
- Brady, Thomas A., Jr., Heiko A. Oberman, and James D. Tracy, *Handbook of European History, 1400-1600: Late Middle Ages, Renaissance and Reformation*, 2 Vols (Leiden: Brill, 1994)
- Braillard, Luc, 'Morphogenèse des vallées sèches du jura tabulaire d'Ajoie (Suisse): rôle de la fracturation et étude des remplissages quaternaires', *Geofocus*, doctoral thesis, Université de Fribourg, 14 (Fribourg: Geofocus, 2006)
- Braudel, Fernand, *Civilization and Capitalism, 15th-18th Century: The Structures of Everyday Life*, trans. by Siân Reynolds (Oakland: University of California Press, 1981)
- Brázdil, Rudolf, Christian Pfister, Heinz Wanner, Hans Von Storch and Jürg Luterbacher, 'Historical Climatology in Europe - The State of the Art', *Climatic Change* 70 (2005), 363-430
- Brock, Emily, 'The Challenge of Reforestation: Ecological Experiments in the Douglas Fir Forest, 1920-1940', *Environmental History*, 9 (2004), 57-79
- Broedel, Hans Peter, The 'Malleus Maleficarum' and the *Construction of Witchcraft: Theology and Popular Belief* (Manchester: Manchester University Press, 2003)
- Bryant, Lawrence M., 'Configurations of the Community in Late Medieval Spectacles: Paris and London during the Dual Monarchy', in *City and Spectacle in Medieval Europe*, eds. Barbara A. Hanawalt and Kathryn L. Reyerson (Minneapolis: University of Minnesota Press, 1994)
- Burnett, Amy Nelson, *Karlstadt and the Origins of the Eucharistic Controversy: A Study of the Circulation of Ideas* (New York: OUP USA, 2011)
- Buszello, Horst, "'Wohlfeile" und "Teuerung" am Oberrhein 1340-1525 im Spiegel zeitgenössischer erzählender Quellen', in *Bauer, Reich und Reformation: Festschrift für Günther Franz zum 80. Geburtstag am 23. Mai 1982*, ed. Peter Blickle (Stuttgart:

Ulmer, 1982), 18-42

Campbell, Bruce, 'Four famines and a pestilence: harvest, price, and wage variations in England, 13th to 19th centuries', in *Agrarhistoria på många sätt; 28 studier om människan och jorden. Festskrift till Janken Myrdal på hans 60-årsdag (Agrarian history many ways: 28 studies on humans and the land, Festschrift to Janke Myrdal 2009)*, ed., Britt Liljewall, Iréne A. Flygare, Ulrich Lange, Lars Ljunggren, and Johan Söderberg (Stockholm: KSLAB, 2009), pp. 23-56

Cardozo, Gideon G.O. Lopez, and Jan H. Behrmann, 'Kinematic analysis of the Upper Rhine Graben boundary fault system', *Journal of Structural Geology* 28 (2006), 1028-39

Chrisman, Miriam Usher, *Bibliography of Strasbourg Imprints, 1480-1599* (New Haven and London: Yale University Press, 1982)

- *Conflicting Visions of Reform: German Lay Propaganda Pamphlets, 1519-1530* (New Jersey: Humanities Press, 1996)
- *Lay Culture, Learned Culture: Books and Social Change in Strasbourg, 1480-1599* (New Haven and London: Yale University Press, 1982)
- *Strasbourg and the Reform: A Study in the Process of Change* (New Haven and London: Yale University Press, 1967)
- 'Urban Poor in the Sixteenth Century: The Case of Strasbourg', in *Social Groups and Religious Ideas in The Sixteenth Century*, Studies in Medieval Culture XIII (Kalamazoo: The Medieval Institute, Western Michigan University, 1978), pp. 59-67

Cioc, Marc, 'The Political Ecology of the Rhine', in *Nature in German History*, ed. By Christof Mauch, Studies in German History, 1 (New York and Oxford: Berghahn Books, 2004), pp. 31-47

Clark, Stuart, *Thinking with Demons: the Idea of Witchcraft in Early Modern Europe* (Oxford: Oxford University Press, 1997)

Courtenay, William J., 'Antiqui and Moderni in Late Medieval Thought', *Journal of the History of Ideas*, 48 (1987), 3-10

Crosby, Alfred W., *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Santa Barbara: Greenwood Publishing Group, 1972)

Cunningham, Andrew, and Ole Peter Grell, *The Four Horsemen of the Apocalypse: Religion, War, Famine and Death in Reformation Europe* (Cambridge: Cambridge University Press, 2000)

Dacheux, Léon, *Un réformateur Catholique à la Fin du XV^e siècle Jean Geiler de Kaysersberg, prédicateur à la cathedrale de Strasbourg: 1478-1510; étude sur sa vie et son temps* (Paris: Delagrave; Strasbourg: Derivaux, 1876)

- Daston, Lorraine, and Katharine Park, *Wonders and the Order of Nature 1150-1750* (Brooklyn: Zone Books, 1998)
- Dollinger, Philippe, 'La évolution politique des corporations strasbourgeoises à la fin du moyen âge', in *Artisans et ouvriers d'Alsace*, ed. by Hans Haug, Publications de la Société Savante d'Alsace et des Régions de l'Est (Strasbourg: Librairie Istra, 1965), pp. 127-133
- *La ville libre de Strasbourg au carrefour des courants de pensée du XVIe siècle: Humanisme et Réforme a Strasbourg*, Exhibition organized by the Strasbourg Archives, Library, and Museums at the Old Customs House from 5 May to 10 June 1973 (Strasbourg: Ville de Strasbourg, 1973)
- Douglass, E. Jane Dempsey, *Justification in Late Medieval Preaching: a study of John Geiler of Keisersberg* (Leiden: Brill, 1966)
- Dunlop, Storm, *Guide to Weather Forecasting* (London: Philip's, 2008)
- Edwards, Emily D., *Metaphysical Media: The Occult Experience in Popular Culture* (Carbondale: Southern Illinois University Press, 2005)
- Ferber, Sarah, *Demonic Possession and Exorcism in Early Modern France* (London: Routledge, 2004)
- Fischer, Albert, *Daniel Specklin aus Strassburg (1536 - 1589): Festungsbaumeister, Ingenieur und Kartograph* (Sigmaringen: Jan Thorbecke Verlag, 1996)
- Fischer-Kowalski, Marina, and Helga Weisz, 'Society as Hybrid Between Material and Symbolic Realms: Toward a Theoretical Framework of Society-Nature Interaction', *Advances in Human Ecology*, 8 (1999), 215-51
- Fluck, Pierre, Joseph Gauthier, and Alexandre Disser, 'The Alsatian Altenberg: a seven centuries laboratory for silver metallurgy', *Troisième Conférence Internationale, Achèoméallurgie en Europe* (France, 2011), DOI: hal-00914305, version 1
- Forel, B., F. Monna, C. Petit, O. Bruguier, R. Losno, P. Fluck, C. Begeot, H. Richard, V. Bichet, C. Chateau, 'Historical Mining and smelting in the Vosges Mountains (France) recorded in two ombrotrophic peat bogs', *Journal of Geochemical Exploration*, 107 (2010), 9-20
- Fountain, Steven M., 'Ranchers' Friend and Farmers' Foe: Reshaping Nature with Beaver Reintroduction in California' *Environmental History*, 19 (2014), 239-69
- Fournier, Marcel, and Charles Engel, eds., *Les statuts et privilèges des universités françaises depuis leur fondation jusqu'en 1789, tome 4/1: Gymnase, Académie, Université de Strasbourg* (Paris: L. Larose, 1894)
- García-Herrera, Ricardo, Luis Gimeno, Pedro Ribera, and Emiliano Hernandez, 'New records of Atlantic Hurricanes from Spanish documentary sources', *Journal of Geophysical Research* 110 (February 2005), 2156-2202, DOI:

10.1029/2004JD005272

- Geertz, Clifford, 'Thick Description: Toward an Interpretive Theory of Culture', in *The Interpretation of Cultures: Selected Essays by Clifford Geertz* (New York: Basic Books, 1973), pp. 3-32
- Gideon, G.O., Lopez Cardozo, and Jan H. Behrmann, 'Kinematic analysis of the Upper Rhine Graben boundary fault system,' *Journal of Structural Geology*, 28 (2006), 1028-39
- Glacken, Clarence, *Traces on the Rhodian Shore: Nature and Culture in Western Thought From Ancient Times to the End of the Eighteenth Century* (Berkeley, Los Angeles, London: University of California Press, 1990)
- Glaser, Rüdiger, *Klimageschichte Mitteleuropas: 1000 Jahre Wetter, Klima, Katastrophen* (Darmstadt: Wissenschaftliche Buchgesellschaft, 2001)
- Grandidier, Philippe-André, *Essais historique et topographiques sur l'église cathédrale de Strasbourg* (Strasbourg: Levrault, 1782)
- Grant, Edward, *The Nature of Natural Philosophy in the Late Middle Ages* (Washington: The Catholic University of America Press, 2010)
- Greef, Wulfert, *The Writings of John Calvin: An Introductory Guide*, (Louisville: Westminster John Knox Press, 2008)
- Greschat, Martin, *Martin Bucer: A Reformer and His Times*, trans. by Stephen E. Buckwalter (Louisville and London: Westminster John Knox Press, 2004)
- Haettel, Jean-Paul, and Edmond Maennel, *Strasbourg et ses Ponts* (Strasbourg: Le Verger Éditeur, 1990)
- Hanska, Jussi, *Strategies of Sanity and Survival: Religious Responses to Natural Disasters in the Middle Ages*, *Studia Fennica Historica* 2 (Helsinki: Finnish Literature Society)
- Harrison, Peter, *The Bible, Protestantism and the Rise of Natural Science* (Cambridge: Cambridge University Press, 1998)
- Hasenfratz, Adam, *Temperature reconstruction over the past two millennia based on a stalagmite 180 record from the Swiss Jura Mountains* (unpublished Master's Thesis, University of Bern, 2012)
- Hasselhoff, Görge K., and David von Mayenburg, ed., *Die Zwölf Artikel von 1525 und das "Göttliche Recht" der Bauern - rechtshistorische und theologische Dimension*, *Studien des Bonner Zentrums für Religion und Gesellschaft* 8 (Würzburg: Ergon, 2012)
- Heinze, Rudolphe W., *Reform and Conflict*, *Monarch History of the Church*, 4 (Oxford: Monarch Books, 2006)
- Henry, Devin M., 'Generation of Animals', in *A Companion to Aristotle*, ed. by Georgios

- Anagnostopolous, Blackwell Companions to Philosophy 51 (Wiley-Blackwell, 2009), sec. 23
- Hermann, Jean-Frederic, *Notices historiques, statistiques et littéraires sur la ville de Strasbourg* (Strasbourg: F.G. Levrault, 1817)
- Hoffmann, Richard, *An Environmental History of Medieval Europe* (Cambridge: Cambridge University Press, 2014)
- Holliday, Adrian, 'Studying Culture', in *Research Methods in Intercultural Communication: A Practical Guide*, ed. Zhu Hua (Chichester: Wiley-Blackwell, 2016), 23-36
- Holm, Poul, Joni Adamson, Hsinya Huang, Lars Kirdan, Sally Kitch, Iain McCalman, James Ogude, Marisa Ronan, Dominic Scott, Kirill Ole Thompson, Charles Travis and Kirsten Wehner, 'Humanities for the Environment – A Manifesto for Research and Action', *Humanities* 4 (2015), 977-92
- Hsia, R. Po-Chia, 'The Myth of the Commune: Recent Historiography on City and Reformation in Germany', *Central European History*, 20 (1987), 203-15
- Hua, Zhu, 'Identifying Research Paradigms', in *Research Methods in Intercultural Communication: A Practical Guide*, ed. Zhu Hua (Chichester: Wiley-Blackwell, 2016), 3-22
- Hughes, J. Donald, *What is Environmental History?* (Cambridge: Polity, 2006)
- Hutchings, Rich, 'Understanding of and Vision for the Environmental Humanities', *Environmental Humanities*, 4 (2014), 213-220
- International Panel on Climate Change, 'Annex III: Glossary', [ed. S. Planton], in: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, eds. T.F. Stocker, D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (Cambridge and New York: Cambridge University Press, 2013)
- Israel, Uwe, *Johannes Geiler von Kaysersberg (1445-1510). Der Strassburger Münsterprediger als Rechtsreformer*, Berliner historische Studien, 27 (Berlin: Duncker & Humblot, 1997)
- Jarvie, Ian Charles, and Joseph Agassi, 'The Problem of Rationality and Magic', in *Rationality*, ed. Bryan Wilson (New York: Harper & Row, 1970), pp. 173-93
- Johnson, Donald Lee, S.H. Ambrose, T.J. Bassett, M.L. Bowen, D.E. Crummey, J. S. Isaacson, D.N. Johnson, P. Lamb, M. Saul and A.E. Winter-Nelson, 'Meanings of Environmental Terms', *Journal of Environmental Quality*, 26 (1997), 581-9
- Jones, Karen, *Wolf Mountains: The History of Wolves Along the Great Divide* (Calgary: University of Calgary Press, 2002)

- Jones, Robert Alun, *Emile Durkheim: An Introduction to Four Major Works* (Beverly Hills: Sage Publications, 1986)
- Kalis, Arie J., Josef Merkt, Jürgen Wunderlich, 'Environmental changes during the Holocene climatic optimum in central Europe - human impact and natural causes', *Quaternary Science Reviews*, 22 (2003), 33-79
- Kaplan, Debra, *Beyond Expulsion: Jews, Christians, and Reformation Strasbourg*, Stanford Studies in Jewish History and Culture (Palo Alto: Stanford University Press, 2011)
- Kautz, Steffi, and the AntAsk Team, 'What are These Sticks on Our Patio (Chance and Rois)', *Antblog*, 17 June 2012 <<http://www.antweb.org/antblog/2012/06/what-are-these-sticks-on-our-patio-chance-and-rois.html>> [accessed 5 July 2013]
- Kelly, Jack, *Gunpowder: Alchemy, Bombards, and Pyrotechnics: The History of the Explosive That Changed the World* (New York: Basic Books, 2009)
- Kelly, P. Micheal, Hanns Hubert Leuschner, Keith R. Briffa, and Ian C. Harris, 'The climatic interpretation of pan-European signature years in oak ring-width series', *The Holocene* 12 (2002), 689-94
- Kieckhefer, Richard, 'The specific rationality of medieval magic', *The American History Review*, 99 (1994), 813-36
- Kienlin, Tobias L., and Pawel Valde-Nowak, 'Neolithic Transhumance in the Black Forest Mountains, SW Germany', *Journal of Field Archaeology*, 29 (2002-2004), 29-44
- Kilby, Susan, 'A Different World? Reconstructing the Peasant Environment in Medieval Elton', *Medieval Settlement Research*, 25 (2010), 72-7
- Kintner, Philip, 'Welfare, Reformation, and Dearth at Memmingen', in *The Reformation of Charity: The Secular and the Religious in Early Modern Poor Relief*, ed. by Thomas Max Safley, Studies in Central European Histories Series, XXX (Leiden: Brill, 2003), pp. 63-75
- Kintz, Jean-Pierre, 'Notes sur Quelques Aspects Demographiques de la Ville de Strasbourg', in *Strasbourg au Coeur Religieux de XVIe Siècle*, ed. by Georges Livet and Francis Rapp, Société Savante d'Alsace et des Régions de L'est, Collection 'Grandes publications', XII (Strasbourg: Librairie Istra, 1977), p. 13
- 'Strasbourg cité refuge: mendiants, fugitifs, exiles', in *Regards sur l'histoire de l'Alsace XVI^e-XX^e siècle: Hommage de la Fédération des Sociétés d'Histoire et d'Archéologie au Professeur Jean-Pierre Kintz* (Drulingen: Scheuer, 2008), pp. 20-48
- Kirchhoff, Thomas, and Ludwig Treple, eds, *Vieldeutige Natur: Landschaft, Wildnis und Ökosystem als kulturgeschichtliche Phänomene* (Bielefeld: transcript, 2009)
- Kittelson, James M., *Wolfgang Capito: From Humanist to Reformer*, Studies in Medieval and Reformation Thought, XVII (Leiden: E.J. Brill, 1975)

- Kjellgren, Martin, *Taming the Prophets: Astrology, Orthodoxy and the Word of God in Early Modern Sweden* (Lund: Sekel Bokförlag, 2011)
- Knepper, Thomas P. and M.H. Bik, *The Rhine, The Handbook of Environmental Chemistry: Water Pollution*, 5 (Berlin and Heidelberg: Springer, 2006)
- Krebs, Manfred, and Jean Rott, ed., *Quellen zur Geschichte der Täufer, Vol 7, Elsass, I: Stadt Strassburg 1522-1532* (Gütersloh, 1959)
- Kretzmann, Norman, Anthony Kenny, and Jan Pinborg, eds, *The Cambridge History of Later Medieval Philosophy* (Cambridge: Cambridge University Press, 1982)
- Kruckeberg, Arthur R., *Geology and Plant Life: The Effects of Landforms and Rock Types on Plants* (Washington: University of Washington Press, 2004)
- Kusukawa, Sachiko, *The Transformation of Natural Philosophy: The case of Philip Melanchthon* (Cambridge: Cambridge University Press, 1995)
- Lamb, Hubert H., 'The cold Little Ice Age climate of about 1550 to 1800', in *Climate: present, past and future* (London: Methuen, 1972)
- Lang, A., H.R. Borrk R. Mäckel, N. Preston, J. Wunderlich, and R. Dikau, 'Changes in sediment flux and storage within a fluvial system: some examples from the Rhine catchment', *Hydrological Processes*, 17 (2003), 3321-34
- Le Roy Ladurie, Emmanuel, *Histoire du climat depuis l'an mil* (Paris: Flammarion, 1967)
- *Histoire humaine et comparée du climat*, 3 vols (Paris: Fayard, 2004, 2006, 2009)
- Lehmann, Hartmut, 'Frömmigkeitsgeschichtliche Auswirkungen der 'Kleinen Eiszeit', *Geschichte und Gesellschaft. Sonderheft 11, Volksreligiosität in der modernen Sozialgeschichte* (1986), pp. 31-50
- Link, Eva Johanna, 'Investigation and Modeling of the Optimization Potential of Adapted Nitrogen Fertilization Strategies in Corn Cropping Systems with Regard to Minimize Nitrogen Losses' thesis for a Doctor of Agricultural Sciences, University of Hohenheim, 2005 <<http://www.dart-europe.eu/full.php?id=57443>> [accessed 30 May 2012]
- Long, Marshall, *Architectural Acoustics* (Oxford: Elsevier Academic Press, 2005)
- Lungqvist, Fredrik Charpentier, 'A New Reconstruction of Temperature Variability in the Extra-tropical Northern Hemisphere During the Last Two Millennia', *Geografiska Annaler, Series A, Physical Geography*, 92 (September 2010), pp. 338-351
- Luterbacher, Jürg, Daniel Dietrich, Elena Xoplaki, Martin Grosjean, and Heinz Wanner, 'European temperature variability, trends and extremes since 1500', *Science* 303 (5 March 2004), 1499-1503
- Mäckel, Rudiger, Arne Friedmann, and Dirk Sudhaus, 'Environmental changes and human

- impact on landscape development in the Upper Rhine region', *Erdkunde*, 6 (2009), 35-49
- Mahoney, Edward P., 'Lovejoy and the Hierarchy of Being', *Journal of the History of Ideas*, 48 (1987), 211-30
- Martin, Hervé, *La metier du prédicateur à la fin du Moyen Age* (Paris: Cerf, 1988)
- Mayenburg, David Von, 'Bäuerliche Beschworden als Rechtstexte: Die Artikel der oberdeutschen Bauern zur Agrarrechtsordnung (Art. 4, 5, 8 und 10)', in *Die Zwölf Artikel von 1525 und das "Göttliche Recht" der Bauern - rechtshistorische und theologische Dimensionen*, ed. by Görge K. Hasselhoff and David von Bayenburg (Würzburg: Ergon, 2012), pp. 99-130
- McCormick, Michael, Ulf Büntgen, Mark A. Cane, Edward R. Cook, Kyle Harper, Peter Huybers, Thomas Litt, Stuart W. Manning, Paul Andrew Mayewski, Alexander F.M. More, Kurt Nicolussi, and Willy Tegel, 'Climate Change during and after the Roman Empire: Reconstructing the Past from Scientific and Historical Evidence', *Journal of Interdisciplinary History*, 43 (2012), 169-220
- McGrath, Alister E., *Christian Theology: An Introduction*, 5th Ed. (Chichester: Wiley Blackwell, 2011)
- *The Intellectual Origins of the European Reformation*, 2nd Ed. (Oxford: Blackwell Publishing, 2004)
- Nyhus, Paul L., 'The Franciscans in South Germany, 1400-1530: Reform and Revolution', *Transactions of the American Philosophical Society*, n.s., 65 (1975), 1-47
- Oberman, Heiko A., 'Via Antiqua and Via Moderna: Late Medieval Prolegomena to Early Reformation Thought', *Journal of the History of Ideas*, 48 (1987), 23-40
- Oehl, Fritz, Endre Laczko, Arno Bogenrieder, Karl Stahr, Robert Bösch, Marcel van der Heijden, and Ewald Sieverding, 'Soil type and land use intensity determine the composition of arbuscular mycorrhizal fungal communities', *Soil Biology and Biochemistry*, 42 (2010), 724-38
- Old, Hughes Oliphant, *The Reading and Preaching of the Scriptures in the Worship of the Christian Church*, The Medieval Church, III (Cambridge, UK, and Grand Rapids: William B. Eerdmans, 1999)
- Ostermann, R., and A. Reif, 'Socioeconomical and Ecological Aspects of Coppice Woods History in the Lower Vosges (France) and the Black Forest (Germany)', *Methods and Approaches in Forest History*, eds. Mauro Agnoletti and Steven Anderson, International Union of Forestry Research Organizations (IUFRO) research series 3 (Wallinford, UK: CABI, 2000), 107-18
- Parayre-Kuntzel, Marguerite, *L'Église et la vie quotidienne du paysan d'Alsace au Moyen Age* (Strasbourg: Librairie Istra, 1975)

- Parkes, M. B., 'Tachygraphy in the Middle Ages', in *Dal pulpito alla navata. La predicazione medievale nella sua recezione da parte degli ascoltatori (secc. XIII-XV)*, ed. by Gian Carlo Garfagnini, International Convention of Religious History in Memory of Zelina Zafarana, held at Florence, 5 to 7 June 1986 (Firenze: Leo S. Olschki, 1989), pp. 159-169
- Pauling, A., and others, 'Evaluation of proxies for European and North Atlantic temperature field reconstructions', *Geophysical Research Letters* 30 (2003), 1787-81, DOI: 10.1029/2003GL017589
- Pearsall, Arlene Epp, *Johannes Pauli (1450-1520) on the Church and Clergy* (Lewiston/Queenston /Lampeter: The Edwin Mellen Press, 1994)
- Peter, Rudolphe, 'Clement Ziegler the Gardener: The Man and his Work', trans. by Cynthia Reimer and John Derkson, *The Mennonite Quarterly Review* 69 (1995), 421-51
- Peters, Edward, 'Superstition, Magic and Witchcraft on the Eve of the Reformation', in *Witchcraft and Magic in Europe: The Middle Ages*, ed. by Karen Jolly, Catharina Raudvere, and Edward Peters (London: Athlone Press, 2002), pp. 173-245
- Pettegree, Andrew, *Europe in the Sixteenth Century* (Oxford: Blackwell Publishing, 2002).
- *The Reformation and the Culture of Persuasion* (Cambridge: Cambridge University Press, 2005)
- Pfister, Christian, 'Klimawandel in der Geschichte Europas. Zur Entwicklung und zum Potenzial der historischen Klimatologie', *Osterreichische Zeitschrift für Geschichtswissenschaften* 12 (2001), 7-43
- Pfister, Christian, and Rudolf Brázdil, 'Social vulnerability to climate in the "Little Ice Age": an example from Central Europe in the early 1770s', *Climate of the Past*, 2 (2006), 115-129
- Pfister, Christian, Rudolf Brázdil, Rüdiger Glaser, Mariano Barriendos, Dario Camuffo, Mathias Deutsch, Petr Dobrovolný, Silvia Enzi, Emanuela Guidoboni, Oldich Kotyza, Stefan Militzer, Lajos Rácz, and Fernando S. Rodrigo, 'Documentary Evidence on Climate in Sixteenth-Century Europe', *Climatic Change*, 43 (September 1999), 55-110
- Pfister, Christian, Jürg Luterbacher, Heinz Wanner, Dennis Wheeler, Rudolf Brázdil, Quansheng Ge, Zhixin Hao, Anders Moberg, Stefan Grab, and Maria Rosario del Prieto, 'Documentary evidence as climate proxies', White Paper written for the Proxy Uncertainty Workshop in Trieste, 9-11 June 2008 (updated December 2008), National Climatic Data Center (US), <https://www.ncdc.noaa.gov/paleo/reports/trieste2008/documentary.pdf> [accessed 28 May 2015]
- Pfleger, Alfred, 'Wettersegen und Wetterschutz im Elsass', *Archiv für Elsässsische Kirchengeschichte*, 16 (1943), 259-72

- Pfleger, Luzian, 'Die Stadt- und Rats-Gottesdienste im Strassburger Münster', *Archiv für Elsässische Kirchengeschichte*, 12 (1937), 1-56
- Rapp, Francis, 'Jean Geiler de Kaysersberg (1445-1510): le prédicateur de la Cathédrale de Strasbourg', in *Grandes figures de l'humanisme Alsacien: Courants Milieux Destins*, ed. by Francis Rapp and Georges Livet, Publications de la Société savante d'Alsace et des régions de l'Est, Collection 'Grandes Publications', XIII (Strasbourg: Istra, 1978), pp. 25-32
- *Réforme et Réformation à Strasbourg. Eglise et Société dans le Diocèse de Strasbourg (1450-1525)* (Paris: Ophrys, 1974)
- 'The Social and Economic Prehistory of the Peasant War in Lower Alsace', trans. Bob Scribner and Gerhard Benecke, *The German Peasant War of 1525 – New Viewpoints*, eds. Bob Scribner and Gerhard Benecke (London: George Allen & Unwin, 1979), pp. 52-62
- Razuvaev, Vyacheslav N., P.Y. Groisman, O. Bulygina, and I. Borzenkova, *Extreme Heat Wave over European Russia in Summer 2010: Anomaly or a Manifestation of Climatic Trend?*, poster presentation at Global Environmental Change AGU Focus Group annual fall meeting, session entitled *Bringing Together Environmental, Socio-Economic and Climate Change Studies in Northern Eurasia*, 15 December 2010 <http://neespi.org/web-content/meetings/AGU_2010/Razuvaev-poster.pdf> [Accessed 28 November 2012]
- Reith, Reinhold, *Umweltgeschichte der Frühen Neuzeit*, Enzyklopädie Deutscher Geschichte 89 (Munich: Oldenbourg, 2011)
- Roberts, Phyllis B., 'Preaching in/and the Medieval City', in *Medieval Sermons and Society: Cloister, City, University*, Proceedings of International Symposia at Kalamazoo and New York, ed. by Jacqueline Hamesse, Beverly Mayne Kienzle, Debra L. Stoudt, and Anne T. Thayer, *Textes et Études du Moyen Âge*, 9 (Louvain-la-Neuve: Fédération Internationale des Instituts d'Études Médiévales, 1998), pp. 151-64
- Röhr, Christian, 'Lage des Oberrheingrabens in einer Karte von Deutschland', *Der Oberrheingrabe*, mod. from Lahner, L. and M. Toloczyki, *Geowissenschaftliche Karte der Bundesrepublik Deutschland*, 2006 <<http://www.oberrheingraben.de/index.htm>> [accessed 7 December 2014]
- Rublack, Ulinka, *Reformation Europe* (Cambridge: Cambridge University Press, 2005)
- Rummel, Erika, 'Wolfgang Faber Capito Chronology', *The Electronic Capito Project* <<http://www.itergateway.org/capito/page2.html>> [accessed 25 October 2014]
- Rusconi, Roberto, 'Reportatio', in *Dal pulpito alla navata. La predicazione medievale nella sua recezione da parte degli ascoltatori (secc. XIII-XV)*, ed. by Gian Carlo Garfagnini, International Convention of Religious History in Memory of Zelina Zafarana, held at Florence, 5 to 7 June 1986 (Firenze: Leo S. Olschki, 1989), pp. 7-36

- Sadlau, Angelika, Helmut Schneider, Carl Helmut Steckner, and Kehl Kultur- und Verkehrsamt, *Die lange Bruck: 600 Jahre Wege zum Nachbarn: Geschichte d. Rheinbrücken zwischen Straßburg u. Kehl* (Kehl: Kehl am Rhein Kultur- und Verkehrsamt, 1989)
- Schenk, Gerrit Jasper, "'Human Security' in the Renaissance? 'Securitas', Infrastructure, Collective Goods and Natural Hazards in Tuscany and the Upper Rhine Valley / Human Security in der Renaissance? Securitas, Infrastruktur, Gemeinschaftsgüter und Naturgefahren in der Toskana und im Oberrheintal', *Historical Social Research / Historische Sozialforschung*, 35, 4 (134), The Production of Human Security in Premodern and Contemporary History / Die Produktion von Human Security in Vormoderne und Zeitgeschichte (2010), 209-33
- Schiewer, Hans-Jochen, 'Universities and Vernacular Preaching. The Case of Vienna, Heidelberg, and Basle', *Medieval Sermons and Society: Cloister, City, University*, Proceedings of International Symposia at Kalamazoo and New York, ed. by Jacqueline Hamesse, Beverly Mayne Kienzle, Debra L. Stoudt, Anne T. Thayer, Fédération Internationales des Instituts d'Études Médiévales, Textes et Études du Moyen Âge, 9 (Louvain-La-Neuve: Collège du Cardinal Mercier, 1998), pp. 387-96
- Schmidt, Charles Guillaume A., *Histoire Littéraire de L'Alsace a la fin du Xve et au commencement du XVIe siècle*, 2 vols (Hildesheim: Georg Olms, 1966; repr. France: Sandoz et Fischbacher, 1879)
- Schrader, Christopher, and Berit Uhlmann, 'Der Rhein ist kürzer als gedacht', *Süddeutsche*, 28 March 2010 < <http://www.sueddeutsche.de/wissen/der-rhein-ist-kuerzer-als-gedacht-jahrhundert-irrtum-1.24664>> [accessed 4 June 2013]
- Schwarzmaier, Hansmartin, 'Mone, Franz Joseph,' in *Neue Deutsche Biographie* 18 (1997), p. 32 f, <<http://www.deutsche-biographie.de/pnd118861476.html>> [accessed 7 February 2016]
- Scott, Tom, *The Early Reformation in Germany: Between Secular Impact and Radical Vision* (Farnham: Ashgate, 2013)
- *Freiburg and the Breisgau: Town-Country Relations in the Age of Reformation and Peasants' War* (Oxford: Clarendon Press, 1986)
 - *Regional Identity and Economic Change: The Upper Rhine 1450-1600* (Oxford: Clarendon Press, 1997)
 - *Town, Country, and Regions in Reformation Germany* (Leiden: Brill, 2005)
 - 'Why was there no Reformation in Freiburg im Breisgau?', in *The Early Reformation in Germany: Between Secular Impact and Radical Vision* (Farnham: Ashgate, 2013), pp. 143-81
- Scott, Tom, ed., *The Peasantries of Europe from the Fourteenth to the Eighteenth Centuries* (London and New York: Longman, 1998)

- Scribner, Robert, 'The Reformation, Popular Magic, and the "Disenchantment of the World"', *Journal of Interdisciplinary History*, 23 (1993), 475-494
- Shepherd, J. Marshall, Drew Shindell, and Cynthia M. O'Carroll, 'What's the Difference Between Weather and Climate?', 2 January 2005
<http://www.nasa.gov/mission_pages/noaa-/climate/climate_weather.html>
[accessed 21 June 2013]
- Signori, Gabrieli, 'Ritual und Ereignis: Die Straßburger Bittgänge zue Zeit der Burgunderkriege (1474-1477)', *Historische Zeitschrift* 264 (April 1997), 281-328
- Snyder, C. Arnold, and Linda A. Huebert Hecht, ed., *Profiles of Anabaptist Women: Sixteenth Century Reforming Pioneers*, Studies in Women and Religion, III (Waterloo, ON: Wilfrid University Press for the Canadian Corporation for Studies in Religion, 1996)
- Stanford, Charlotte A., *Commemorating the Dead in Late Medieval Strasbourg: the Cathedral's Book of Donors and Its Use (1320-1521)* (Farnham: Ashgate, 2011)
- Stayer, James M., *The German Peasants' War and Anabaptist Community of Goods* (Montreal and Kingston: McGill - Queen's University Press, 1991)
- Strauss, Gerald, *Luther's House of Learning: Indoctrination of the Young in the German Reformation* (Baltimore and London: The John Hopkins University Press, 1978)
- Stupperich, Robert, 'Franck, Sebastian,' in *Neue Deutsche Biographie* 5 (1961), S. 320-321, <<http://www.deutsche-biographie.de/pnd11853467X.html>> [accessed 7 February 2016]
- Symes, Carol, 'Out in the Open, in Arras: Sightlines, Soundscapes, and the Shaping of a Medieval Public Sphere', in *Cities, Texts, and Social Networks, 400-1500: Experiences and Perceptions of Medieval Urban Space*, ed. by Caroline J. Goodson, Anne E. Lester, and Carol Symes (Aldershot: Ashgate, 2010), pp. 279-302
- Taylor, Larissa, *Soldiers of Christ: Preaching in Late Medieval and Reformation France* (Toronto: University of Toronto Press, 2002)
- Tesauro, Magdala, Christine Hollenstein, Ramon Egli, Alain Geiger, and Hans-Gert Kahle, 'Continuous GPS and broad-scale deformation across the Rhine Graben and the Alps', *International Journal of Earth Sciences*, 94 (2005), 525-37
- Thomas, Keith, *Man and the Natural World: Changing Attitudes in England 1500-1800* (Oxford: Oxford University Press, 1983)
- *Religion and the Decline of Magic: Studies in Popular Beliefs in Sixteenth and Seventeenth Century England* (Oxford: Oxford University Press, 1971)
- Thompson, John L., ed., *Genesis 1-11*, Reformation Commentary on Scripture, I (Downer's Grove: InterVarsity Press, 2012)

- Tschacher, Werner, *Der Formicarius des Johannes Nider von 1437/38* (Aachen: Shaker, 2000)
- Tuan, Yi-Fu, *Topophilia: A Study of Environmental Perceptions, Attitudes, and Values* (New York: Columbia University Press, 2013)
- Ühlinger, Urs, Karl M. Wantzen, Rob S.E.W. Leuven, and Hartmut Arndt, 'The Rhine River Basin', in *Rivers of Europe*, ed. by Klement Tockner, Urs Ühlinger, and Christopher T. Robinson (London, Burlington, MA, and San Diego: Academic Press, 2009), pp. 199-245
- Ustaszewski, Kamil, and Stefan M. Schmid, 'Control of preexisting faults on geometry and kinematics in the northernmost part of the Jura fold-and-thrust belt', *Tectonics*, 25 TC5003, doi: 10.1029/2005TC001915
- Voltmer, Rita, 'Du discours à l'allégorie: Représentations de la superstition, de la magie et de la sorcellerie dans les sermons de Johannes Geiler de Kaysersberg', in *Sorcellerie Savante et Mentalités Populaires*, ed. by Antoine Follain and Maryse Simon (Strasbourg: Presses universitaires de Strasbourg, 2013), pp. 45-88
- 'Political Preaching and a Design of Urban reform: Johannes Geiler of Kayserberg and Strasbourg', *Franciscan Studies*, 71 (2013), 71-87
 - *Wie der Wächter auf dem Turm: ein Prediger und seine Stadt Johannes Geiler von Kaysersberg (1445-1510) und Straßburg*, Beiträge zur Landes- und Kulturgeschichte, 4, ed. by Franz Irsigler (Trier: Porta Alba, 2005)
- Vrac, Mathieu, and Pascal Yiou, 'Weather regimes designed for local precipitation modeling: Application to the Mediterranean basin', *Journal of Geophysical Research*, 115 (27 June 2010), D12103 / DOI: 10.1029/2009JD012871
- Waller, John, *The Dancing Plague: The Strange, True Story of an Extraordinary Illness* (Naperville: Source Books, 2009)
- Waller, John C., 'In a Spin: the mysterious dancing epidemic of 1518', *Endeavour*, 32 (2008), 117-21
- Walsham, Alexandra, 'The Reformation and "The Disenchantment of the World" Reassessed', *The Historical Journal*, 51 (2008), 497-528
- Weber, Max, 'Science as a Vocation', in *From Max Weber: Essays in Sociology*, trans. & ed. By Hans Heinrich Gerth and C. Wright Mills (New York: Oxford University Press, 1946), pp. 129-156; first pub. as 'Wissenschaft als Beruf', in *Gesammelte Aufsätze zur Wissenschaftslehre* (Tübingen 1922), pp. 524-55
- Weiss, Paul, *1516-1700, heurs et malheurs d'une ville et d'une province: selon les Chroniques de Malachie Tschamser, père-gardien des Franciscains de Thann* (Boofzheim: ACM Édition, 2000)
- Weissbass, Friedrich, *Weingewerbe und Weinleutenzunft im alten Basel* (Basel: Helbing

and Lichtenhahn, 1958)

Weithase, Irmgard, 'Geiler von Kaisersberg als Kanzelredner', *Sprechkunde und Sprecherziehung*, 4 (Emsdetten: Pädagogischer Verlag Schwamm, 1959), pp. 116-33

Wetter, Oliver, and Christian Pfister, 'Spring-summer temperatures reconstructed for northern Switzerland and southwestern Germany from winter rye harvest dates, 1454-1970', *Climate of the Past*, 7 (2011), 1307-26

Wetter, Oliver and Christian Pfister; Giovanna Battipaglia, David Frank, Ulf Büntgen, Petre Dobrovolný, Rudolf Brázdil, Christian Pfister, and Jan Esper, 'Five centuries of Central European temperature extremes reconstructed from tree-ring density and documentary evidence', *Global and Planetary Change*, 72 (2010), 182-191

Wetter, Oliver, Christian Pfister, Johannes P. Werner, Eduardo Zorita, Sebastian Wagner, Sonia I. Seneviratne, Jürgen Herget, Uwe Grünwald, Jürg Luterbacher, Maria-Joao Alcoforado, Mariano Barriandos, Ursula Bieber, Rudolf Brázdil, Karl H. burmeister, Chantal Camenisch, Antonio Contino, Petr Dobrovolný, Rüdiger Glaser, Iso Himmelsbach, Andrea Kiss, Oldřich Kotyza, Thomas Labbé, Danuta Limanówka, Laurent Litzenburger, Øyvind Nordl, Kathleen Pribyl, Dag Retsö, Dirk Riemann, Christian Rohr, Werner Siegfried, Johan Söderberg, Jean-Laurent Spring, 'The year-long unprecedented European heat and drought of 1540 – a worst case', *Climatic Change*, 125 (August 2014), 349-63

Weyer, Monica, and Christa Koch, 'Die Kunde vom Wetter - Meteorologie in den Anfängen', *Wetter: verhext - gedeutet - erforscht*, ed. by Landschaftsverband Westfalen-Lippe, Katalog zur gleichnamigen Wanderausstellung des LWL (Münster: Museumsamtes für Westfalen, 2006)

White, Lynn, Jr., 'The Historical Roots of Our Ecological Crisis', *Science*, New Series, 155:3767 (10 March 1967), 1203-7

Wieriks, Koos, and Anne Schulte-Wülwer-Leidig, 'Integrated water management for the Rhine river basin, from pollution prevention to ecosystem improvement', *Natural Resources Forum*, 21 (1997), 147-56

Williams, George Huntston, *The Radical Reformation* (Philadelphia: The Westminster Press, 1962)

Woods, Robert, 'Urban-Rural Mortality Differentials: An Unresolved Debate', *Population and Development Review*, 29 (2003), 29-46

Worster, Donald, 'Transformations of the Earth: Toward an Agroecological Perspective in History', *The Journal of American History*, 76 (1990), 1087-1106

Electronic Resources

Bayerische Akademie der Wissenschaften <<http://www.geschichtsquellen.de>>

Bayerische Staatsbibliothek digital < <http://www.bsb-muenchen.de/index.php>>

CERL Thesaurus, Consortium of European Research Libraries <<http://thesaurus.cerl.org>>

Deutsche Biographie <<http://www.deutsche-biographie.de/search>>

Fourmilab Switzerland, 'Calendar Converter'
<<http://www.fourmilab.ch/documents/calendar/#juliancalendar>>

Luther Memorial Foundation of Saxony-Anhalt, 'Martin Luther's Life', <www.luther.de>
[accessed 6 October 2014]

Münchener Digitale Bibliothek <<http://www.digitale-sammlungen.de/>>

Oxford English Dictionary <www.oed.com>

Tambora: the climate and environmental history collaborative research environment
<<https://www.tambora.org/>>

Universal Short Title Catalogue <<http://www.ustc.ac.uk/>>

Declaration of Originality

I declare that I have referenced all resources and aids that were used and assure that the paper is authored independently on this basis.

Linnéa Rowlatt 9 February 2016