Flooding in early modern England: Cultures of coping in Gloucestershire and Lincolnshire

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### Abbreviations

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<tr>
<td>Berkeley Manuscripts</td>
<td>John Smyth (ed. Sir John MacLean ), <em>The Berkeley Manuscripts</em> (3 vols., Gloucester: John Bellows, 1885)</td>
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<tr>
<td>Commons Journal</td>
<td><em>Journal of the House of Commons, 1547-1660</em> (7 vols, London: HMSO, 1802)</td>
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<td>CSPD</td>
<td>Robert Lemon and Mary Anne Everett Green (eds), <em>Calendar of State Papers, Domestic, 1547-1660</em> (49 vols, London: HMSO, 1856-86)</td>
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<tr>
<td>English Reports</td>
<td><em>The English Reports</em> (178 vols, Edinburgh: W. Green &amp; Son, 1900-1930)</td>
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<tr>
<td>TBGAS</td>
<td><em>Transactions of the Bristol and Gloucestershire Archaeological Society</em></td>
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### Units

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**Note on the text:** Unless otherwise stated, all dates are given in the ‘old style’, except that the year is taken to have turned on 1 January, rather than 25 March. Original spellings have been retained, except for the silent expansion of common contractions and the substitutions of ‘j’ and ‘i’, ‘u’ and ‘v’ and ‘vv’ and ‘w’. Titles of primary sources have been left unchanged.
Acknowledgements

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Postgraduate students sometimes comment on the isolation they experience as lone researchers, working on an individual project perhaps for the first time. Thankfully, I have never experienced this, due to the many colleagues and friends I have found amongst fellow postgraduates in the Department of History and Centre for Renaissance Studies. Collectively, through their thoughtful responses in Graduate Research Forum and their own shining examples of success, they have been a source of motivation and inspiration. Individually, Dave, James, Jenny, Josh, Malik, Matt, Meleisa, Naomi, Paula, Ruth, Sara, Steve and Tom have been good friends and intellectual companions.

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Declaration

This thesis is the author’s own work and has not been submitted for a degree at another University.

Parts of this thesis have been published by the author:

Abstract

This thesis examines the social, cultural and political contexts of flooding in early modern England. It explores the relationships between floods and the productive practices and organising principles of the communities in which they occurred. Drawing on insights from the environmental humanities and social sciences, this thesis approaches flooding as a socio-natural phenomenon, in which humanity and nature played mutually influential parts. Taking in evidence from England as a whole, and with special reference to South Holland in Lincolnshire, and the Severn Estuary Levels in Gloucestershire, this thesis locates flooding at the forefront of cultural and political changes occurring over the early modern period. Following recent European approaches to histories of flooding, this thesis considers the ways in which early modern society contributed to, and sought to mitigate the effects of particularly damaging flooding. In five chapters it analyses the productive and destructive role of flooding in local communities, how these floods were interpreted by those they affected, the political nature of disputes about flooding and the impact of flooding on the early modern state. Together, these chapters stress the need to understand flooding as a socially and culturally generated phenomenon that had political implications. Far from being purely ‘natural’, flooding was a complex process which contemporaries both recognised and actively negotiated. In analysing an environmental process with specific reference to the traditional domains of social, cultural and political history, this thesis links the small but expanding subdiscipline of early modern English environmental history to broader historical narratives, showing the potential for an environmental approach to pre-modern England.
Introduction

This thesis argues for the social, cultural and political significance of flooding in early modern England. It argues that such significance comes from continual, mundane, everyday interactions with flooding and flood risk, as well as from high-intensity moments of ‘catastrophe’. Daily interactions with water resources, and chief among these the management of flood risk, shaped the experience of rural life and the nature of local communities. Large-scale floods also shaped local experience, yet in ways that amounted to accelerations and developments of pre-existing practices and structures, rather than unprecedented, revolutionary rifts in communal experience.

Historiographically, this thesis attempts to foreground environmental issues amongst more familiar themes in early modern British history. By analysing floods in their cultural, social, and political contexts, the thesis as a whole attempts to reach out to these more established early modern historical subdisciplines, both in an attempt to make a comprehensive survey of the impacts of flooding, and to make an intervention into early modern English historiography. Flooding is an inherently environmental topic, yet there is a paucity of early modern English environmental history within which to situate this thesis. By using an environmental topic to tie together strands of cultural, social and political history, this thesis is an attempt to demonstrate the untapped potential of an environmental focus in broader early modern English histories. It is thus an attempt to show how environmental issues, such as flooding, played an important part in processes of cultural, social and political change.

Historiography

As the thesis is structured thematically, each chapter engages with a different historiography, and thus each body of literature is dealt with individually in each chapter. In this short introductory literature review, I sketch out the place of this study within existing historical studies of water, flooding, and the environment in early modern England.
Reconstructing historical flood frequencies constitutes the most commonly adopted scholarly perspective on historical flooding. With their direct applicability to contemporary models of flood frequency, such studies adopt natural-scientific perspectives mirroring the approaches described in recent calls from high-profile environmental historians to reach beyond the humanities.¹ Leading environmental historians have promoted engagement with methods as diverse as palynology (the study of fossilised pollen), dendrochronology (the study of tree rings), and speleothemology (the study of stalactites).² The history of flooding in early modern Europe has benefited from these interdisciplinary endeavours. Research into the incidence of past flooding draws on a strong tradition of scientifically-informed, empirical accounts of past climates.³ Historians have used chronicles, diaries, flood marks and archaeological evidence, amongst other sources to measure the incidence of flooding, with a particular focus on central European rivers.⁴ There has been some research undertaken in this

genre in the British Isles, with studies of river flow and storm flood frequency. However, historical datasets covering British floods are not as complete as those for other European areas.

There is then a gap in the current understanding of early modern English flooding. We do not have a complete or accurate picture of the scale of flooding in the period. Where scholars have produced such data in other European contexts, this has often been as a result of large, collaborative projects that have brought together several disciplines. Some of the most detailed research into the social causes and costs of flooding has been undertaken where such data exist. Yet to create such data and analyse it in its social contexts would be beyond the scope of this thesis. Without the data necessary to produce an empirical study of the incidence of flooding, and without the means to produce it, this project is unable to rely on scientific research into disasters, and is necessarily not an exercise in historical climatology or physical geography. Instead the analysis attempts to unearth the impact and experience of flooding, whilst making no claims about trends in its frequency.

The historiography of ‘natural disasters’ provides one useful way to consider the impact and experience of early modern flooding. In 1981 economic historian Eric Jones criticised the exclusion of ‘natural disasters’ from historical writing. He observed that historical studies that gloss over ‘disasters’ ‘result from a conviction that such events are

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outside human history and cannot be accounted for on its terms.\textsuperscript{8} Since then, the field has grown considerably, and studies of historical disasters make up a large portion of the literature on early modern flooding. Disaster studies have begun to illuminate aspects of everyday life through a focus on extraordinary moments of crisis and rupture. These studies have been heavily influenced by sociological and anthropological studies of contemporary disasters.\textsuperscript{9} Greg Bankoff’s study of ‘cultures of disaster’ in the modern Philippines has shown how societies produce and mitigate disasters through their social, political and economic order, and how the threat of disaster has been routinised into daily life for the inhabitants of late-twentieth-century Manila.\textsuperscript{10} Contemporary sociological studies have also shown how the impacts of disasters are distributed according to pre-existing structural vulnerabilities, related to socioeconomic status, access to formal political institutions, age and gender.\textsuperscript{11} They are then thoroughly social phenomena in which both causes and effects are determined by the organisation of society.

Historians of risk and disaster acknowledge that no disaster is ever entirely natural. Research into contemporary flooding has shown that flooding can be foreseen and mitigation strategies can be implemented, meaning that ‘floods should not mean disasters’.\textsuperscript{12} Fundamental characteristics of settlements, such as location or extractive practices, can expose communities to risk, as well as those communities’ perceptions of those risks.\textsuperscript{13} Settlements

exploiting the economic benefits of proximity to water are at risk in this manner, and have been characterised as sites of ‘managed uncertainty’.14 When the management of this uncertainty fails, disasters occur as both ‘physical events and social or cultural occurrences’.15 Social scientific analysis of contemporary flood hazards emphasises ‘human vulnerability rather than natural hazards’.16 Research in this vein focusses on the ‘social and economic systems that... generate vulnerability’.17 It is then incumbent upon the researcher to understand how ‘human systems place people at risk’.18 Disasters have also been shown to be cultural occurrences in that their definition and remembrance are constructed and contested. Culture is crucial in that it both ‘determines how a disaster comes about’, and helps to define ‘what constitutes a disaster in the first place’.19 Disaster memories are political in that opposing groups promote and downplay conceptions of events as disastrous as parts of wider exercises of political power.20

However disaster studies, by their very definition, have disaster as their subject. This thesis is concerned with the history of relationships between human society and the environment around it, and thus needs a broader focus, one that encompasses the mundane and the spectacular, from daily tidal inundations of coastal marshland to destructive storm surges. By shifting the angle of focus away from individual, high intensity events, and towards

flooding as a phenomenon, this thesis attempts to situate flooding, as an environmental process, within its temporal and local contexts. It is as important to historicise mundane events, and to understand how they were understood and managed, as it is to historicise disasters. This thesis is thus an exploration of how communities cope with hazards, rather than just the occasional realisation of hazards as disasters.  

In attempting to understand how early modern communities coped with flooding, this thesis then foregrounds cultural representations of and adaptations to flooding. It uses some of the same sources as scientific and empirical studies – in particular narrative accounts of flooding – but analyses them from a more cultural perspective. Such a ‘constructivist’ approach – involving understanding how humans relate to nature and to environmental processes – has been an important part of environmental history for decades, and draws on the ‘cultural turn’ in more traditional historiographies. This scholarship has challenged conventional ideas of ‘nature’ and ‘the environment’, and paid close attention to the ways in which historical subjects, as well as contemporary historians, culturally constructed the environment. William Cronon has highlighted how both historical actors and historians have brought their cultural constructs to bear on the natural world, to the point that when used in a historical narrative, ecological agents like animals, water, dirt ‘belong as much to rhetoric and human discourse as to ecology and nature.’

There is also a need to understand the cultural politics of flooding in the early modern period from within that period. The classic studies of early modern environmental attitudes do not discuss flooding in any great depth. Clarence Glacken refers to Noah’s Flood and Enlightenment understandings of floods as catastrophes in *Traces on the Rhodian Shore*, yet

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23 Raymond Williams’ *The Country and the City* (London: Chatto and Windus, 1973), is often cited as one of the foundational texts of this approach.
not to early modern flooding. Likewise, Keith Thomas makes some reference to the Biblical Flood, but no mention of early modern flooding in *Man and the Natural World*. Recent synoptic studies of the development of understandings of water have treated the early modern period in insufficient depth, and have tended to see it as a bridging period between classical and medieval, primarily religious modes of thought and modern, rationalist understandings of hydrology. Attempts to link water history to broader themes in early modern history, like the Reformation and the ‘development of capitalism’, have fallen short of their lofty ambitions by failing to fully historicise and contextualise human uses of water. Previous attempts at an ‘ecological history’ of early modern England have not sufficiently accounted for the relationship between the environment and culture, understanding ecology in a narrow sense as affecting fertility, mortality and demography (comparing the people of the early modern forest of Arden to modern owls). This thesis, and chapter four in particular, attempts to fill this historiographical gap and examine ‘ideas as ecological agents’ in relation to early modern flooding.

Cultural responses and adaptations to flooding are as important as technical ones. Simon Schama and Franz Mauelshagen have described early modern communities on the flood-labile northern Dutch and German coasts as ‘hydrographic’ cultures. Their studies

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have shown how relationships to water, and to flood risk in particular, coloured many aspects of political and social life. Schama has even claimed that Dutch governmental decentralisation and its democratic culture stem from its historical experience of flooding. More concrete links between coping with environmental conditions and political culture have been made in relation to fen drainage and air pollution. In disrupting routine practices and structures, disasters, including floods, have been shown to test the ‘effectiveness’ of political power and therefore invite reflection on its legitimacy. In the most extreme readings of such scenarios in recent studies, significant changes in climatic variability, and increases in bad weather conditions in particular, have been linked with political turmoil and state breakdown.

Chapter five considers some of the political consequences of flood risk management.

Aside from making an intervention into water history and the environmental history of early modernity, this thesis also seeks to engage with early modern British history. By approaching the environment from an explicitly social, cultural and political perspective, this thesis hopes to open up channels for mutual dialogue between the traditional heartlands of early modern history – social, cultural and political history – and the more peripheral field of environmental history. There are very few self-identified works of early modern British environmental history, and even fewer focussing on England. Christopher Smout has blazed a trail in Scotland, yet his example has not extended to English historiography. In the mid-1990s, Linda Merricks called for historians to refocus on the environment, arguing that

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‘environmental concerns can, and should, illuminate all history’, and urging her colleagues to ‘ask about the impact of the natural on their present subject of research, and to address questions of relationships with the environment as part of normal practice’.37 Despite this, environmental history remained ‘especially weak’ within the United Kingdom early in the new millennium.38

Outside of England, the history of flooding has been approached from a variety of disciplinary perspectives, and temporal and geographical contexts. The literature is most well developed in Belgium and the Netherlands, where historians have taken agricultural, cultural, economic, and social approaches.39 Marie Luisa Allemeyer, Michael Kempe and Franz Mauelshagen have studied flood societies and cultures in early modern Germany.40 In France, historians have studied drainage and issues in river law related to inundation.41 However, histories of water management in the British Isles have not followed European trends. As part of a broader literature on transportation, there is a substantial body of research into inland and coastal navigation, focusing on the impact of river navigation for trade and economic

development, and the improvement of navigation in the seventeenth century. A substantial literature has examined the related issue of drainage, focussing on the fenland of eastern England from political, geographic and agricultural perspectives. Historians have also explored water supply, but have produced very few works on early modern flooding.

Contributors to a recent volume on flooding in the Thames estuary examined the period from

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the middle ages until the twentieth century, yet did not touch upon the period 1530-1700.\textsuperscript{45} James Galloway has illuminated adaptation and maladaptation to changing flood patterns in medieval eastern England.\textsuperscript{46} Greg Bankoff has demonstrated that the East of England shares a history of flood risk and adaption with other North Sea Basin coastal regions.\textsuperscript{47} Stephen Rippon has also analysed the variety of medieval perceptions of English wetlands, paying attention to secular as well as spiritual ‘emotional responses’ to changing landscapes.\textsuperscript{48} Lists and compendia of flood events for specific regions have been published, but as yet the cultural aspects of flooding identified in recent ‘disaster’ research have yet to be examined in the early modern English context.\textsuperscript{49} Given the amount of research undertaken in other geographical contexts, and the lack of studies available on England, there is then an opportunity to study early modern English floods using insights from European scholarship.

**Key terms**

But what exactly is a flood? For a river to be ‘in flood’, it need only be undergoing ‘relatively high flow’ that exceeds its ‘natural’ channel.\textsuperscript{50} A strict hydrological definition of a ‘flood’ is simply ‘any relatively high water level or discharge above an arbitrarily selected flood level or flood discharge.’\textsuperscript{51} Expanding this definition to include more than just riparian flooding, Smith and Ward define floods as ‘a body of water which rises to overflow land which is not normally submerged’. As Smith and Ward acknowledge, it is only in atypically submerging land that floods in such definitions appear to carry negative consequences.\textsuperscript{52}

\textsuperscript{45} James Galloway (ed.), *Tides and Floods: New research on London and the tidal Thames from the middle ages to the twentieth century* (London: Centre for Metropolitan History, 2010).


\textsuperscript{49} C.E.P. Brooks and J. Glasspoole, *British Floods and Droughts* (London: Ernest Benn, 1928); Lamb and Frydendahl, *Historic Storms of the North Sea*.


\textsuperscript{52} Smith and Ward, *Floods*, pp. 8–9.
hydrologist’s perspective, then, flooding is not the inherently negative phenomenon that is covered in news reports and portrayed in dystopian fiction.

The ‘flood-pulse concept’ goes further, and characterises flooding as an integral part of a riparian system. It states that flooding is an important, productive and regular part of a river’s hydrological regime. Floods, cast as ‘water-land interactions’, both ‘create and maintain river-floodplain ecosystems as some of the most productive and diverse ecosystems in the world’.\(^{53}\) The biological effects of flooding are not necessarily dependent upon the position of a floodplain along a river, as it is the flooding itself that stimulates specific organic processes.\(^ {54}\) This differs from the previously widely accepted view of rivers as entire ecosystems, the ‘river continuum concept’, which posits that at certain points in a river system, specific processes and species occur, something determined by relative proximity to other upstream sections and the watershed.\(^ {55}\) In such a model, the river is an actant only on itself, with downstream conditions determined by those upstream. The river is then not viewed from the perspective of the variety of ecosystems of which it forms a part at its different stages.\(^ {56}\)

This is problematic for large early modern rivers, such as the Severn or those draining into the Wash, which had broad floodplains and proceeded through marsh and fenland. This debate has consequences for understandings of early modern flooding as the two models pose fundamentally different concepts of flooding: one as a systemic process that is biologically productive, the other as an external force atypical to a river system that disrupts equilibrium.

Using a ‘flood-pulse’ rather than ‘river continuum’ approach enables us to understand these rivers in relation to their local geographical contexts, and to study their floods as part of their normal operation. This is justified by the spatially and temporally ‘complex, individual, and


inconsistent’ nature of the wetland and reclaimed areas under study here. Flooding and variability are important parts of these land- (or water-)scapes, making them more than just continuations of upstream processes.

These ecological perspectives are taken as a guide, rather than a rule. As Demeritt notes, ecology, ‘like every other science, is a discourse with its own particular rules and disciplinary structures that produce representations of nature.’ Applying these representations too keenly to the fragmentary representations of the historical record would be a methodologically fraught endeavour. Instead, the flood pulse is taken as a way of understanding what floods are. Considered as part of a system, we can begin to understand their history. Rather than freak, disruptive events (which a small minority undoubtedly are), they become part of the environment which communities use to reproduce themselves.

In analysing the history of flooding at a local scale, this thesis makes frequent reference to the concept of ‘community’. Far from an uncontroversial term, the idea of ‘community’ has come under scrutiny from early modern historians. Seeing in it nothing more than a rhetorical shorthand with which to gloss over conceptual gaps and conjure an image of long-lost harmony, Christine Carpenter has argued for the abandonment of the term entirely. At its most broad, ‘community’ has been taken as meaning ‘small, bounded, collections of items, whether human or non-human’, constituting ‘a convenient focus for analysis.’ Here I follow Beat Kümin and use ‘local community’ to refer to small-scale topographical units, in which more or less extensive bodies of (male) members utilized shared resources and institutions to exercise a range of rights and duties on behalf of their fellow inhabitants.

57 Gardiner et al, ‘Making the most’, p. 32.
Topography, and specifically here the experience of hydrology, creates and shapes the nature of communities. What is clear from the few studies of early modern water politics that have been undertaken is that water as both a hazard and a resource had the capacity to shape communities in terms of their geographical scope, organising principles and membership. Mark Jenner has argued that water supply in early modern London created ‘new collectivities’ of ‘conduit communities’ that were not confined within parish or ward boundaries, but oriented around a shared resource.62 H.E. Hallam has shown how wetland resources were safeguarded by exclusive regulations, defining a restrictive notion of community, and Arthur Owen has shown how the need to pay for flood defences brought together ‘frontagers’ (those living next to a sea wall) and ‘levy towns’ (townships further in land) in times of hardship in a mutual endeavour.63 Thus, as a result of the ways in which water, as both a resource and a hazard, layers and reorients pre-existing local communities (like the parish, or the township) and helps formulate new ones, community is used to refer to a variety of geographically circumscribed groups oriented towards political and religious institutions, economic arrangements and environmental management. These communities necessarily overlapped, sometimes entirely. This study then finds utility in the flexibility of the term community, finding, like Clive Holmes, it to be the ‘best framework around which to organize a structured yet dynamic account of the experience and ideals of the men and women’ of a particular locale.64

These communities are then analysed in terms of how they ‘cope’ with flooding. Coping is taken here to refer to both long and short term attempts to influence the impact of forces not entirely under human control. These include the immediate, behavioural responses of those struck by sudden high intensity floods, such as the inhabitants of Aust who in 1607

were ‘obliged to climb into trees to save their lives’, ‘having abode there 2 or 3 days’. They also include the longer-term attempts of societies to practically and culturally safeguard themselves, through offices and institutions like the parish dikereev or the Commissions of Sewers (chapter five), and flood memorials erected in parish churches (chapter three). Coping is then taken as more than just reactive action, and is considered as part of longer-term strategies of promoting ‘resilience’ within communities, as well as understanding, communicating and disputing the process of flooding more generally. Coping strategies are of course not always entirely successful at building resilience, and can produce vulnerability among certain groups (chapter two).

Methodology

Throughout, this thesis crosses subdisciplinary boundaries between social and environmental history. This is partly source-driven; the majority of the sources used in this thesis are from what Geoffrey Parker has termed the ‘human archive’, the documentary records produced by humans in their interactions with their environment. This thesis makes extensive use of local administrative sources to understand how communities coped with flooding. The records of Commissions of Sewers make up much of the source base for chapters three and five. Commissions of Sewers were special governmental-judicial bodies, authorised by the crown to operate at a variety of geographical scales to administer flood defence and drainage works. ‘Sewers’ included drainage ditches and sea walls, amongst other technologies either created or managed by humans. The Commissions had generous summary powers, exercised through a ‘Court of Sewers’, and could fine, imprison, confiscate goods, appoint officials, enforce service, assess and tax a population. They are more fully described in chapters three, four and five. Records of Commissions of Sewers respresent a vast number of documents in local records offices throughout the country, yet have remain under-exploited by historians.

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65 Bristol Record Office (hereafter BRO) InfoBox 5/5, Extracts from “Manuscript Calendar of the Mayors Etc. of Bristol, p. 1; BRO InfoBox/5/6, ‘Extracts from a Bristol MS & Calendar’ regarding pestilence, fires, floods etc., 1257–1719. Supplied to Mr W Edwards’, p. 3.
66 Parker, Global Crisis, pp. xvi-xvii.
68 Some of the reasons for this are outlined in chapter five.
Records for Commissions operating in Gloucestershire and Lincolnshire survive from the sixteenth century, and are used throughout this thesis. These include minute books detailing the proceedings of court sessions, surveys of lands and flood defences, petitions, and correspondence amongst other papers. Parochial and manorial records detailing local communal arrangements for water management are also used to provide greater local texture.

In chapters three and four, focusing on cultural aspects of flooding, a variety of narrative and visual sources are read together to understand early modern conceptualisations of flooding. Parish registers offer narrative descriptions of floods of varying lengths that reveal popular understandings of flooding and disaster. Legal disputes over riverside lands, and responsibilities for flood defence and drainage generating articles of inquiry, depositions, legal opinion and statutes provide further perspectives on perceptions of water management and flood risk. Printed popular literature, often featuring striking illustration, provides a further source base for understanding environmental perception in the period, and this is used in chapter three. Such narrative sources can be used to complement and contrast administrative ones, each with their own formal codes and languages, yet each able to reveal something about how their authors and audiences interacted with water.

Using such sources, and approaching flooding from human and non-human perspectives requires an approach that incorporates both human and natural inputs. The approach adopted here involves considering floods as co-constructions of both humanity and ‘nature’. They are neither wholly natural ingresses of autonomous bodies of water, neither deliberate or unthinking acts of humanity. This mutually causative, dialectic relationship between the environment, human social relations and cultural constructions has been most explicitly theorised by social scientists. Environmental sociologist John Hannigan has described the ‘emergent’, ‘fluid’ and ‘interactive’, relationship between society and the natural

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69 Gloucestershire Archives, D 272 Collection, ‘Gloucestershire Court of Sewers [later South Gloucestershire Drainage Board]’; Lincolnshire Archives, Spalding Sewers/449, ‘Commissions 1618–1811 [collection]’.

world.\textsuperscript{71} There is no \textit{prima causa} in this model, as both environment and society are mutually reactive. This relationship has been likened to ‘partners in a dance’, each ‘influenced by the other’s creative movements’. Such a metaphor avoids assigning overall motive power to either nature or culture, focussing rather on flux, and capturing ‘the autonomous movements of nature’s dynamics without implying intentionality by the nonhuman partner, only movement.’ \textsuperscript{72} Geographer Erik Swyngedouw employs a similar model in his research into water politics. He sees ‘nature and society [as] deeply intertwined’, and has argued, in relation to the production of the Spanish waterscape, that the ‘socionatural is historically produced to generate a particular, but inherently dynamic, geographical configuration’. \textsuperscript{73} For philosopher of ecology Michael Zimmerman, from this perspective nature itself must be radically reconceptualised as an ‘ongoing coproduction, generated by humans as well as organic, material, linguistic and technical nonhumans’. \textsuperscript{74} Sverker Sörlin and Paul Warde have identified this human-natural interrelationship at the heart of the concept of ‘environment’. For them, the environment is ‘a human product, an alloy of nature, and the impacts of human labour which emerges as a historical category’. \textsuperscript{75} Likewise, Warde has argued that physical features of the landscape are deeply shaped by human action: ‘the vegetation of a region, whether a river was navigable in any way or not, and so forth, is the product of human action and choices.’ \textsuperscript{76} Such an approach allows us to retain insights provided by cultural approaches to the environment, and to wed them to the experience of environmental phenomena.

Approaching ‘the environment’ in this manner differs from previous historical-geographical research which focused on understanding the development of particular places

or landscapes. Here the focus was on understanding the character of a specific past landscape, rather than more general relationships between human societies and the physical world. Characterised by books like W.G. Hoskins’ *The Making of the English Landscape* (1955) and Maurice Beresford’s *History on the Ground* (1957), this school of historical research sought to trace, in Hoskins’ words, the ‘historical evolution of the landscape as we know it’. To achieve this, one had to be ‘a botanist, a physical geographer, and a naturalist, as well as an historian.’ Hoskins’ and Beresford’s energy came from a desire to know the landscape of England that they saw rapidly fading in the face of encroachments by scientists, developers and politicians. For Hoskins, the landscape was a worthy historical subject in its own right, and his interest lay in tracing the ‘historical evolution’ of the landscape of mid-twentieth-century England. This attachment to place has come under recent scrutiny for being Romantic in motivation and methodology. In this thesis, landscapes are understood to be constantly changing. On a basic level this is because of flooding itself, which alters landforms, nutrient availability, and so forth. It is also an attempt to move away from the study of landscapes as static. Historians and archaeologists have critiqued approaches the physical environment that treat rivers and the landscape as merely a passive ‘backdrop for social action’. Rather, ‘the normal state for landscapes is one of constant change’, at a variety of

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different levels and rates, dependent upon social, cultural as well as physical processes.\textsuperscript{82} Furthermore, Hoskins’ insistence on encountering the landscape, convening with the countryside and getting his boots muddy, gave him a false familiarity with the past. He would write with an ‘easy, almost imperceptible, further step to the assertion that the people who created that landscape were familiar too.’\textsuperscript{83} This thesis then examines exactly what Hoskins has been accused of glossing over: the ways in which people, individually and collectively, interpreted, managed, and debated their relationships to flooding.

**Local contexts**

This thesis looks at England as a whole, but makes special reference to two areas, the Severn Estuary Levels in Gloucestershire and South Holland in Lincolnshire. The study areas have been chosen for both human and environmental factors. They were chosen primarily for the strength of the archival historical record. Both South Holland, Lincolnshire and Gloucestershire have long sequences of records of Commissions of Sewers along with strong collections of other material relevant to local water management. Both of the study areas lie in significant areas of estuarine alluvium. The Severn Estuary Levels sit beside the Severn Estuary on a strip of alluvium that runs from Cardiff to Newnham north of the Severn Estuary, and from the northern Somerset Levels to Frampton on Severn to the south. South Holland lies on the southwestern edge of the Wash, north of the Cambridgeshire peatlands, on the expanse of estuarine alluvium that stretches from Peterborough to Boston, around the Lincolnshire Wolds, up to Grimsby and Scunthorpe.\textsuperscript{84}

**Severn Estuary Levels**

The Gloucestershire area of the Severn Estuary Levels stretches from the mouth of the Bristol Avon in the south, up to Gloucester in the north.\textsuperscript{85} Other toponyms for the area have been

used. The ‘Vale of Berkeley’ is largely coterminous with the study area selected here, but does not include land on the ‘Welsh’ side of the Estuary, and is not widely recognised as referring to the levels as a whole.\textsuperscript{86} The region has also been characterised as the Lower Severn Vale Levels, stretching southwest of Berkeley to the Avon.\textsuperscript{87} The present study area omits the Welsh and Somerset parts of the Levels, and extends from the Arlingham ‘loop’ in the north, to the Avon in the south on both sides of the estuary, including all of the rural settlements in Gloucestershire west of the Cotswolds and east of the higher ground of the Forest of Dean. This encompasses the central area of activity of the Gloucesstershire Commission of Sewers, the ‘Upper and Lower Levels’.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure01.png}
\caption{The Severn Estuary Levels. The study area extends from the ‘Arlingham Loop’ in the north-east, down to the Avon Levels above Bristol in the south-west. Map: adapted from Alex Brown, ‘Mid-Holocene Vegetation History and Human Impact in the Middle Severn Estuary: palaeoenvironmental data from the coastal submerged forest at Woolaston, Gloucestershire’, \textit{TBGAS}, 127 (2009), pp. 21–43, p. 22.}
\end{figure}

The lower Severn is an alluvial river that carves its channel from sediment which it then transports and deposits downstream. Such rivers typically have dramatic histories of changes in their channels, as the Severn did across the medieval and early modern periods. The Severn itself was a busy trading route (perhaps the second most significant river in seventeenth century-Europe), navigable from the Estuary 190 km inland to Pool Quay in Mid Wales, upstream of Shrewsbury. Around 11,400 square kilometres drain into its length and out through its Estuary.

Contemporary archaeologists divide the Severn Estuary into three zones, the inner, middle and outer estuaries. The inner estuary extends from Gloucester to Slimbridge, and is characterised by sand-based silt, above inorganic clay and a thick layer of peat, with tidal processes affecting fresh rather than salt water. The middle estuary continues from the southern edge of the inner estuary to Aust, and is characterised by interlaced layers of peat and silt, known as the Oldbury Levels, the result of a ‘complex and dynamic relationship between land and sea’. The outer estuary extends from Aust to the Somerset Levels, taking in the Avon Levels from Aust to Avonmouth, and is similarly stratified with layers of peat and silt beneath a layer of estuarine alluvium, comprising reclaimed salt marsh. The Avon levels constitute the extreme southern limit of the Gloucestershire research area.

In the sixteenth century this area was significantly wetter than it is today. John Leland referred to the area between Thornbury and Berkeley as the ‘Severn marches’, and recorded

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90 Wanklyn, ‘The Severn navigation’, p. 34.
93 Hewlett and Birnie, ‘Holocene environmental change’, p. 54, p. 59.
94 Brown, ‘Mid–Holocene Vegetation History’, p. 35.
how several rivers and springs that started in the Cotswolds, descended down through the region, passing through the ‘salte marsche’ and issuing into the Severn.\textsuperscript{96} He described the land south-west of Thornbury continuing to Aust as marshland.\textsuperscript{97} This area formed most of what the Commission of Sewers called the ‘Upper Level’. The ‘Lower Level’ corresponded to the ‘Avon Levels’, stretching from Aust in the north-east to ‘Kingroad’, the contemporary name for the mouth of the Bristol Avon.\textsuperscript{98} The Levels were also susceptible to a variety of flood risks. The Upper and Lower Levels receive runoff from the southern edge of the Cotswold hills, and tidal processes dominate the estuary in its salt and freshwater zones, with an extreme tidal range of 14.8m, the second largest in the world.\textsuperscript{99} Southern Gloucestershire was thus subject to inundations by fresh and salt water, the risks and benefits of each needing to be balanced effectively for land here to be used productively.

The estuary region is characterised by low lying vales, supporting a largely pastoral agricultural economy, with the region still famous today for its Double Gloucester and Double Berkeley cheeses, Old Spot sausages and wool production. Antiquarian Samuel Rudder described the Vale as unequalled for fertility in the whole of England, thanks to the Severn which ‘gives life and spirit to the soil.’\textsuperscript{100} Clothing and the wool industry provided employment for many in the vale, with more than a quarter of men employed in the textile industry in the Upper Level early seventeenth century.\textsuperscript{101} In the Lower Level, more than half were employed in agriculture.\textsuperscript{102}

**South Holland**

The Parts of Holland form one of three ‘Parts’ of Lincolnshire, bordering the Parts of Lindsey to the north, the Wash to the east, the Parts of Kesteven to the west, and Cambridgeshire and Norfolk to the south. Holland itself is divided into three wapentakes, of which Elloe concerns

\textsuperscript{97} Ibid., ii, p. 64.
\textsuperscript{98} For this usage see *Statutes*, iii, p. 906; Leland (ed. Toulmin Smith), *Itineraries*, iii, p. 101.
\textsuperscript{99} Hewlett and Birnie, ‘Holocene environmental change’, p. 50.
\textsuperscript{102} Tawney and Tawney, ‘An Occupational Census’, p. 63.
the present study. Elloe, occupying south Holland, lies on the edge of the Wash. The south Holland Wash receives water from three major rivers, the Nene in the south and the Glen and Welland in the north. The region is characterised by significant amounts of land reclaimed from the sea after the later eleventh century. Most of the villages were settled on land reclaimed by 1086, yet they gradually incorporated large amounts of reclaimed marshland as land was inned from the Wash over the next five centuries (figure 0.3). The area is characterised by both fenland and marshland, both of which were en route to the Wash. This led to Defoe describing the whole Fen area as ‘the sink of no less than thirteen Counties’ and ‘often thus overflowed’. The Wash has a tidal range of 6.5m, the highest on the British North Sea coast. Like southern Gloucestershire, South Holland was also subject to inundations by fresh and saltwater, the risks and benefits of each needing to be balanced effectively for land here to be used productively.

Figure 0.2 Holland within southern Lincolnshire. Map: *Holland Sewers*, i, p. vi.
The study area is mostly fenland, divided between a large expanse of what geographer Michael Chisholm has characterised as silt fen, stretching from the Wash to beyond Spalding and Wisbech, where it meets a lesser area of peat fen. Beyond south Holland is the majority of the ‘Bedford Level’, the area of mainly peat fen, drained to varying degrees of success in...
the seventeenth century by the Earl of Bedford, Cornelius Vermuyden and their successors.\textsuperscript{104} For some scholars, ‘silt fen’ is a misnomer, and the area of South Holland around the Wash should be called marshland, a distinction contemporaries would have recognised.\textsuperscript{105} These ‘marshes’ are still however characterised as ‘shifting, fragile, uncertain grounds’ that required careful management and adaptation.\textsuperscript{106} Whether technically marsh or silt fen, this region was still subject to flood risk from the inland peat fens, water from which was held back by fen dykes, and the tidal processes of the Wash. When Leland travelled through the region in the 1530s he described travelling from Bourne in the Kesteven Uplands, to Boston, across ‘hy Holland’, ‘xx. miles al by low grounde and much marsh, and no woode in maner.’\textsuperscript{107} Fuller described the area as ‘the reflection of the opposite Holland in the Netherlands with which it sympathized in the fruit fulness and low and wet situation Here the brackishness of the water and the grossness of the air is recompensed by the goodness of the earth abounding with dairies and pasture’.

Economic activity focussed around three primary types: on the land most liable to flood by sea, river or fen, fishing, fowling, collecting rushes and reeds and making salt. In the areas inundated only seasonally, animals were grazed, turves cut and hay produced. In the driest, ‘upland’ and ‘island’ areas, arable farming could take place.\textsuperscript{109} In Holland, the silt land hosted several salt pans, and Spalding was a significant fishing centre in the medieval period.\textsuperscript{110} This was a largely pastoral region in which diet and income were supplemented by the products of the fen, and all available arable land was turned over to the production of grains and pulses, of which barley was the most important crop.\textsuperscript{111} Like much of fenland Lincolnshire in the early modern period, the south Holland area was home to comparatively

\textsuperscript{107} Leland (ed. Toulmin Smith), \textit{Itineraries}, v, p. 33
\textsuperscript{109} H.C. Darby, \textit{The Medieval Fenland} (Reprint, Newton Abbot: David & Charles, 1974 [1940]), p. 22
\textsuperscript{110} Darby, \textit{Medieval Fenland}, p. 26, p. 38.
few significant gentry families, and Elloe contained no great family seats.112 Holland was generally a relatively prosperous area, home to thirty-eight parishes which made up 6.3 per cent of the area of the county, yet routinely paid 21.4 per cent of assessments levied under Charles I and the Commonwealth.113 This wealth was not concentrated in the hands of one or two leading families but was instead distributed amongst a ‘substantial group of middling-rich yeomen’ in a relatively even gradation, supported by an ‘indeterminate but seemingly large population of poor commoners.’114

Chapter outlines

Chapters one and two examine the materially profitable and perilous aspects of flooding respectively. Chapter one argues that far from being solely malevolent forces, floods were viewed as sources of profit by those who lived with them. Drawing on and supplementing research by Joan Thirsk and others, this chapter argues that floods, and wetland landscapes more generally, were put to work by inhabitants.115 It shows how across the early modern period, floods were integrated within agricultural practices and communal arrangements. Agricultural treatises are used to trace the increasing control exercised over flooding for agricultural benefit. In the course of the seventeenth century practical attempts to control flooding, through drowned and floated water meadows increased agricultural yields, and were symptomatic of a new desire and capacity to engineer the rural landscape. This chapter also considers how communities were able to sustain themselves using flooding as a resource. It argues that utilising floods often necessitated communal action. Communal action was not however harmonious or inclusive. In an attempt to move away from images of early modern

114 Thirsk, English Peasant Farming, p. 47.
floodplain communities as living harmoniously with nature, this chapter examines some of the ways in which the sustainability of flood-prone communities was based on social exclusion.

The second chapter analyses some of the social costs of damaging flooding and the attempts made to prevent it. Reviewing some of the scientific literature outlined above, and contrasting it with recent European studies of the impact of flooding, this chapter suggests that disastrous flooding needs to be better contextualised to be fully understood. By studying the impact of flood events of all scales – from roadside inundations to large coastal storms – we can better contextualise them. It focusses on damaging flooding at all scales, from the 1607 Bristol Channel ‘tsunami’, to individual field-scale water control failures. Through this attention to a broad spectrum of flood events the chapter shows that floods were not damaging because of their physical impact alone, but because of underlying vulnerabilities present in the societies they affected. Thus, it draws on sociological conceptions of risk and vulnerability, as well as their application in other historical and geographical contexts, to understand why different groups experienced damaging flooding in different ways. Such a view necessitates a reconsideration of the category of disaster, as seemingly smaller, unstudied flood events are shown to have had more frequent ‘disastrous’ effects on people and their environments than higher-intensity events.

Chapter three addresses what floods meant in early modern England. Currently our understanding of the cultural history of flooding and events that might be termed ‘natural disasters’ more generally, is informed by recent studies of providence.116 This chapter offers another view of how floods were understood, focussing on narratives of floods produced by those who were flooded, rather than on the printed literature used in accounts of early modern providentialism. Using parish registers, flood memorial plaques, and the records of Commissions of Sewers, and drawing on recent research into custom and senses of local places and pasts, this chapter argues that those who were flooded understood flooding through highly

localised cultures of place, kinship and custom often before they reflected providentially on their experiences. This is in contrast to the impression of flooding derived from printed literature and images, which are shown to be generic and formulaic. Floods instead had a multitude of meanings, which were invoked at different times as communities came to cope with significant material disruption. This multiplicity is alluded to in current providentially-focused historiography, yet is not fully explored. By reigning in the idea that floods were always interpreted providentially, this chapter opens up space for other kinds of environmental attachments in the period, and strengthens previous historians’ arguments over the importance of providence as a rhetorical and political tool.

The final two chapters examine the politics of flooding. Chapter four examines the ways in which flood-labile and wetland landscapes were represented in disputes over flooding and drainage. Taking a long-term perspective of the perception and valuation of wetlands, this chapter argues that flooded land became devalued in the later sixteenth and seventeenth centuries as ideas of improvement took hold amongst governing elites. Three case-studies are used – competing readings of the 1532 Statute of Sewers, the search for ‘surrounded’ grounds, and attempts to drain the fenland – to show how ideas of improvement altered early modern attitudes towards floodplains. Flooding was reconceptualised, with ideas of improvement opening up new space for floods to no longer be seen as hazards to mitigate against, but as problems that might be finally solved. Using law reports, depositionary evidence in Exchequer court cases and pamphlet debates, this chapter shows that the ideology of improvement was by no means hegemonic, and these revaluations of floodplains and wetlands were contested by contemporaries, particularly those who lived on and utilised areas affected by improvement projects. The chapter shows how flooding became a political issue, and how environmental issues were linked to broader conceptions of the royal prerogative, economic prosperity, and the strength of the nation.

The final chapter roots these debates in their local social and political contexts, focussing on political and legal attempts to manage floodplains. It argues that the state was most effective in assisting local communities to deal with their flood risk when power was
devolved to the most local level. Central government is shown to have been an ineffectual tool for supporting local flood response and management, whilst regional and local institutions were both more successful and engaged more people. Using the records of Commissions of Sewers, chapter five shows that such popular political engagement with statutory flood defence authorities helped in turn foster the growth of the state. It shows how Commissions of Sewers grew in response to periods of damaging flooding, as local people came to use the resources of the state to manage their local environments. The growth of Commissions of Sewers typify a state formation process that relied on the use of brokers, local expertise, and the delegation of discretionary powers. The chapter also reveals some of the ways in which the popular political practices of local people shaped and were shaped by involvement with the state. The chapter shows how customary cultures of flood management were increasingly codified as communities used bureaucratic and administrative forms of organisation to manage their flood risk.
1. Risk and reward: flooding and rural production

Abstract

This chapter situates flooding in its everyday context, highlighting the mundane, routine and expected aspects of events which are typically characterised as disastrous and damaging. By looking at the ways in which communities used floods, and sought to exploit potentially hazardous water resources, this considers flood liable lands as resources that were increasingly seen as places of potential profit. It uses agricultural treatises, depositional material from cases in the court of exchequer and before commissions of enquiry, local manuscript sources and modern scientific literature to prove the worth of flood liable land. Using the concept of socio-environmental metabolism, it illuminates some of the limits communities set to sustain themselves. The chapter shows that the challenges of agricultural production on floodplains could be the spur for significant communal action. That this action was communal does not necessarily mean it facilitated communal harmony, or that it was inclusive. Furthermore, some of the limits of communal regulation of resources are sketched. Floods are shown to have been no barrier to agricultural and economic activity in rural society, and the ‘success’ of these amphibian societies is shown here to have rested on an exclusive set of social practices that mean we should question any uncritical praise of them as ‘sustainable’.

Introduction

In 1639, John Smyth, estate steward of Berkeley in southern Gloucestershire, described the common warth lands of his native county. Warths are lands that lie directly on the shore of a body of water. In the early modern period, these often lay beyond primary flood defences. Smyth claimed that these warths, used as common pasture

yeild not the 5th part of their true value, drawe many poore people from other places, burden the township with beggerly Cotages, Inmates, and Alehouses, and idle people;
where the greater part spend most of their daies in a lazy idlenes and petite theeveries, and fewe or none in profitable labour.\(^1\)

In 1662, William Dugdale, author of the encyclopaedic *History of Imbanking and Draining*, described the ‘poor desolate places’ of the Lincolnshire Fenland with similar disdain.\(^2\) The fens and marshes around the Wash contained ‘no element good’, ‘the Air being for the most part cloudy, gross, and full of rotten harrs; the Water putrid and muddy, yea full of loathsome vermin; the Earth spongy and boggy’.\(^3\) The area of Holland was particularly bad, having been gained from the sea centuries earlier, it was, in the early seventeenth century, said to be ‘a vast deep Fen, affording little benefit to the Realm, other than Fish or Fowl, with overmuch harbour to a rude, and almost barbarous, sort of lazy and beggarly people.’\(^4\) Putting it very simply, Isaac Casaubon described much of the seasonally inundated Isle of Ely as ‘*inutiles*’, useless.\(^5\)

Until the middle of the twentieth century, historians repeated the main thrusts of these prejudicial remarks, primarily as a foil for their praise of early engineers. In his 1830 history of the drainage of the fens, Samuel Wells compared the Tudor-Stuart fenland to a ‘totally desolate, and almost valueless’ country, and described it as ‘marsh fenny waste, and surrounded’.\(^6\) In order to laud the entrepreneurial individualism of Cornelius Vermuyden, the seventeenth-century engineer engaged to drain the ‘Great Level’ of the fens, Samuel Smiles denigrated the ‘undrained’ fens. They were a ‘great dismal swamp’, ‘haunted’ by flocks of starlings, riddled with ‘many devious channels’ that became an ‘inland sea in winter, and a noxious swamp in summer’.\(^7\) In the twentieth century, G.M. Hipkin referred to the inhabitants of the fenland as ‘half-civilized fen “slodgers,”’ who fished and fowled and reared great

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\(^1\) Berkeley Manuscripts, iii, p. 328.
\(^3\) Ibid., [sig. A3].
\(^4\) Ibid., p. 171.
number of geese’. As late as the 1950s, L.E. Harris referred to Vermuyden’s success in draining the ‘continuous swamp’ of the fenland.9

These overwhelmingly negative pictures of agricultural life in the low and wet grounds of early modern England no longer hold much water. Revisionist scholarship has emphasised the fruitfulness of flooded lands: lands liable to inundation were not barren and their people not backward looking.10 Instead, they were highly specialised and sustained a mode of existence that encouraged not only a high degree of environmental reflexivity (in terms of managed risk and exploitation), but a high degree of communal activity. Agriculture was focused on specialised regional commodities and subsistence produce. In her seminal essay on the undrained Isle of Axholme, Joan Thirsk showed that lands subject to inundation could be just as productive as any others. Axholme, in its pre-drainage state was a pastoral economy specialised to its specific fenland situation. Rather than being a backward, unproductive land, it sustained a variety of pastoral activities and produced meat, dairy, leather and hemp for regional markets. Farmers communally managed pasturage, balancing their demand with what the fenland could provide, and in bad years sustaining themselves with additional grazing paid for in neighbouring villages. Axholme was ecologically sustainable, based on the population as settled, with neighbour and neighbour drawn together by what I term the communal imperative of the floodplain.11

But the verb to sustain is transitive, and therefore we must ask who, or what, sustains who or what? The concept of ‘socio-environmental metabolism’ is a useful analytical tool in answering such questions. Socio-environmental metabolism refers to the exchange that goes

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on between material resources and people, in particular the ways in which ecologies and social organisation interact. The concept states that societies are, more or less explicitly, ‘vitally concerned with the organization of flows of materials and energy between themselves and nature’. The social element of this metabolism is the way in which a society is organised to regulate these material and energy flows. Such flows can then be managed through two principle levers – altering the quantity of material and energy available, and altering the ways in which it is distributed. We can thus say that a society is sustained by a given set of material and calorific inputs distributed by a specific set of social practices. A concrete example of this would be communities subsisting on cereal farming, and the specific divisions of labour involved in the sowing, reaping and transformation of those cereal grains, or a pastoral society regulating who and what can be grazed on common land through the practice of stinting. Both the resource endowment of a community and the management of that resource maintain the society. Exactly who or what is sustaining such an arrangement is to be found in the ways in which human and natural resources are managed, which can have both positive and negative impacts on both people and the natural world. In relation to urban socio-environmental metabolisms, geographer Erik Swyngedouw has argued that there is ‘no such thing as an unsustainable city in general, but rather there are a series of urban and environmental processes that negatively affect some social groups while benefiting others’, and therefore we must ask ‘who gains and who pays’? Socio-environmental metabolisms ‘produce a series of both enabling and disabling social and environmental conditions’, and while ‘environmental (both social and physical) qualities may be enhanced in some places and for some people, these often lead to a deterioration of social and physical conditions and qualities elsewhere.’

Haberl et al offer a useful summary of the concept, outlining both the social and environmental constraints:

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15 Ibid., p. 23.
For agrarian societies, sustainability thus develops into a multi-dimensional socio-ecological problem. In each specific case in which solutions were found throughout history, such diverse processes as soil degradation, the development of new technologies, knowledge transfer, the ability to organize labour processes or the capacity to agree upon and implement workable rules governing the common usage of resources have all played a part.\(^\text{16}\)

Thus, ‘processes of socio-environmental change’ are ‘never socially or ecologically neutral.’\(^\text{17}\) We can then speak of a ‘hydrosocial’ cycle between communities and water resources that encompasses the ‘entanglement of water flows and power relations’ and ‘the politicised nature of water management’.\(^\text{18}\) Analysing flood-prone communities in this way allows us to appreciate the social and ecological logics behind specific configurations of resources. We can understand how flood-prone communities existed as they did, and why they did so.

Proceeding from Thirsk’s desire to view flood-labile lands on the terms of their inhabitants, this chapter analyses the ways in which early modern English local communities in riverine and estuarine habitats managed the potential risks and rewards of agricultural production on floodplains. Most broadly it adds to scholarship that emphasises the value and productivity of lands considered waste by contemporary agricultural reformers. Wet regions, with ‘excess water’, that produced rushes and provided fishing and fowling for those with common rights were deemed to be the most ‘barren and unimproved lands’. The corollary of this was that these lands also contained within them the greatest potential for increased profits.\(^\text{19}\) Viewing flood-labile lands from outside of this paradigm enables us to take a more

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neutral view of flooding, rather than assuming it to be something that stunts productivity, as per the early modern literature of improvement.

Furthermore, rather than being ‘poor desolate places’, these flood-prone lands necessitated and encouraged a high degree of communal management and cooperative endeavour. Analysing communal practices that were designed to capitalise on and mitigate the effects of frequent flooding from the perspectives of ‘socio-environmental metabolisms’ enables us to gain a more rounded image of the productive relationships between people and floods. Crucially, it enables us to go beyond previous studies that acknowledge the productivity of flood LIABLE land but provide an overly positive image of communities there, admirably analysing the environmental aspects of wetland metabolisms, but less so the social aspects. In her important studies of the ‘death of nature’, Carolyn Merchant overlooked negative aspects of fenland society in explaining how ‘[p]easant tradition... maintained a balance between humans, animals, crops, and soils for hundreds of years’.20 More recent literature has compared the fenlanders of eastern England to pre-colonial communities in sixteenth-century Mexico. Here, wetland communities have been compressed to represent a proto-proletarian ‘class’, who opposed the ‘capitalist transformation of the European countryside’.21 In this analysis, competing ‘socioecologies’ are an expression of class conflict, and the classes that serve as analytical categories lose texture and detail.22 The fenland economy is said to have ‘depended on the rise and recession of water over land that nourished the soil with silt, kept the water table sufficiently high for plants to reach, and prevented the peat from compacting’, and those that people it are the ‘peasant farmer and commoner indigenes’.23 Like some analyses of common land, these are ‘pleasing’ models of ‘people in

22 Ibid., p. 37.
tune with their natural surroundings’. Environmental politics below the level of community-state interaction are obscured in these narratives. The environmental side of the socio-environmental metabolism is accounted for, but the social is not. Such approaches to ‘indigenous’ communities are redolent of images of the ‘ecological Indian’, a trope in the history of early modern North America. Viewing fenlanders as ‘noble savages’, ‘living in harmony with nature’ conflates communal adaptation to wetland environments with a conception of sustainability that is limited to environmental factors alone.

We should then turn away from approaches that attempt to demonstrate the environmental ‘sustainability’ of past agricultural practice, and look instead at the specific social practices different agricultural practices regulated and implemented. Such practices of ‘dwelling’ involve ‘the exercise of power in relation to other dwellers, or would-be dwellers’. The collective management of pre-industrial agriculture should not be considered ‘environmentally sustainable’, because it was fundamentally concerned with human action and its consequences (above all, in fact, how the actions of one person had consequences for another). These actions did indeed have implications for ‘sustainability’, but the rules themselves were not intended as blueprints for sustainable living.

Looking at socio-environmental metabolisms helps to avoid this focus on purely environmental sustainability.

Furthermore, studying the risk-producing elements of production on floodplains allows us to make observations about the operation of common property regimes, in relation

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to common warth land. Communal management practices have been criticised in literature that characterises them as inoptimal, doomed and ultimately ‘tragic’ systems that tend towards the depletion of resources and inevitable environmental degradation. Following responses to this ‘tragedy of the commons’ thesis, put forward by Elinor Ostrom, Carl Dahlman and a number of scholars more recently, this chapter offers a more positive view of pre-modern communal management arrangements. From this survey, communal management emerges as an internally coherent system rather than an inoptimal, doomed system of resource management. However, the examples in this chapter also show that where the exercise of common rights exacerbated flood risk on adjoining land, communal organisations were less-effective in regulating behaviour.

The material for this chapter comes primarily from contemporary agricultural manuals, depositional material in cases related to flood-labile land in the court of exchequer, testimony before commissions of enquiry and from local records of land management. This diverse source base records the practices of several social groups on several different types of landholding. The agricultural manuals were aimed at landowners, many of who began to farm their demesne in this period, and looked to improve both the quality of their lands and its rental value. These manuals are somewhat generic. Authors liberally borrowed from classical sources, and whilst some, like John Worlidge, provided a bibliography of works consulted, others, like Gervase Markham, copied large swathes of text from their predecessors.

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Aristocratic landowners took a keen interest in the productivity of their land, with authors like Markham proving particularly popular.\textsuperscript{33} Some works did penetrate further down the social spectrum, with Thomas Tusser’s part-verse collections \textit{A hundredth good pointes of husbandry}, and its sequel \textit{Five hundredth points of good husbandry} aimed at, and proving popular among, husbandmen of middling and lower status.\textsuperscript{34} To delve deeper into the practices of these people, testimony from suits over the ownership of marginal land is used. Deponents in legal cases described agricultural practices that are excluded from some of the agricultural manuals. As the manuals are primarily focussed around either the improvement of rent or the improvement of yields, low intensity production tends to be excluded. Thus many of the more opportunistic farming practices, such as gathering activities, that played a crucial part in the mixed floodplain economy are only to be found when those that practiced them described them orally.

**Risky and rewarding landscapes**

At the most fundamental level floods helped to improve the fertility of land. So-called ‘flood-pulses’ can have significant and wide-ranging impacts on the ecology of rivers and their hinterlands. Flood-pulses are regular inundations of land from riparian sources that ‘create and maintain river-floodplain ecosystems as some of the most productive and diverse ecosystems in the world’.\textsuperscript{35} Pulses allow usually channel-dwelling organisms to feed on terrestrial vegetation, and waters deposit silt and sediment on land.\textsuperscript{36} Regular, predictable flood-pulses are thus not shocks, but instead are the ‘principal agent controlling the adaptations of most of the biota’, and thus their removal, rather than their occurrence causes disturbance.\textsuperscript{37} Because

\textsuperscript{33} Thirsk, ‘Making a fresh start’, p. 27; Mauro Ambrosoli (trans. Mary McCann Salvatorelli), \textit{The wild and the sown. Botany and agriculture in Western Europe: 1350–1850} (Cambridge: Cambridge University Press, 1997), pp. 246–7; Slack, \textit{The Invention of Improvement}, p. 234; \textit{The Berkeley Manuscripts}, iii, p. 43.

\textsuperscript{34} These books combined went through twenty-three editions in the eighty-one years after the first publication in 1557. Andrew McRae, ‘Husbandry manuals and the language of agrarian improvement’, in Leslie and Raylor (eds), \textit{Culture and Cultivation}, pp. 35–62, p. 45.


of the importance of these regular ‘inundations’, ecologists urge us to think of floodplains as expansive riverbeds which are sometimes dry, rather than land that is sometimes wet.\(^{38}\) Whilst inundation at the wrong point in the growing season, with salt rather than fresh water, or with fresh water for too long at any one time could greatly hinder growing, floods at the right time, in the right place and for the right duration could be immensely beneficial to farmers. Yet, even land that was inundated at the ‘wrong’ time, or with salt water, still generated distinct ecologies that local inhabitants made both continued and ad-hoc use of. This section details some of the ways in which agriculturalists and communities did this.

The primary use of flood-liable land was as grazing. Contemporary naturalists refer to land under this kind of flood-grazing regime as ‘coastal and floodplain grazing marshes’, yet in the early modern period regional variation saw these ‘marshes’ also termed ‘meadows’.\(^{39}\) Early modern agricultural writers praised the qualities of flood waters that overflowed these lands, and thus valued land that was liable to flood.\(^{40}\) In his influential husbandry manual, Conrad Heresbach espoused the virtues of riverside land and river islands, which, because of their overflowing, do serve the husbandman to ‘better yeerely... yeelde his gayne’.\(^{41}\) Low-lying riverside land was valuable the world over. John Worlidge explained that in Africa and Asia, the ‘richest and most Fertile Lands are maintained in their Fertility by the Sediment of the over-flowing Waters.’\(^{42}\) In England, lands ‘that border on the greater Rivers, as Thames, Severn, Trent, Owse, &c.’ were said to be unimprovably fertile, ‘uncapable of obstruction at the pleasure of the Husbandman.’\(^{43}\) Best of all was land that descended down to a river, with a naturally draining incline. Sloping land had a ‘great deal the advantage’ over

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\(^{40}\) This is in sharp contrast to today, where flood waters in industrial and agro-industrial societies contain significant amounts of toxic effluents, ranging from motor oil to human waste. See Euripides Euripidou and Virginia Murray, ‘Public health impacts of floods and chemical contamination’, *Journal of Public Health* 26, 4 (2004), pp. 376–383.

\(^{41}\) Conrad Heresbach (trans. Barnaby Googe), *Four bookes of husbandry, collected by M. Conradus Hereschachius, counseller to the hygh and mighty prince, the Duke of Cleue* (London, 1577), fol. 20v, fol. 43v.

\(^{42}\) Worlidge, *Systema agriculturae*, p. 16.

\(^{43}\) Ibid., p. 16.
flat as waters could flood and vacate it with little input from the farmer, making ‘the Meadow become very fruitful’. Land that lay flat and directly adjacent to a river was still adjudged ‘very improveable’ by Richard Blome. Leonard Meager informed his readers that ‘River-land’ and ‘fast Ground... will do very well.’ It was not only agricultural authors who valued flooded land. Managed natural flooding was undertaken on the Alt Level in Lancashire to improve hay crops. The inhabitants of Lakenheath (Suffolk) opposed drainage because when ‘Fenns in the winter tyme are not overflowen with waters it causeth them to be Sterrill & barren’.

There was of course a limit beyond which water became a hindrance to certain types of agriculture. Sodden, boggy ground was unsuitable for arable farming and intensive grazing, which agricultural writers devised several schemes to alleviate. Among these were drainage, underdrainage, and controlled flooding. Folkingham noted this ‘Paradox’ and advised that boggy, ‘spongy’ grounds are ‘settled, fastened and firmed by frequent over-flowing them with Fords or Land-flouds’. Water Blith gave similar advice: ‘Boggy Quagmiry Land’, that was ‘moyst and spewing’ required ‘a very good Land-flood, or a constant River to overflow it’.

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44 Joseph Blagrave, New additions to the art of husbandry comprizing a new way of enriching meadows, destroying of moles, making tulips of any colour : with an approved way for ordering of fish and fish-ponds ... with directions for breeding and ordering all sorts of singing-birds : with remedies for their several maladies not before publicly made known. (London, 1675), pp. 3–4.


49 William Folkingham, Feudigraphia. The synopsis or epitome of surveying methodized. Anatomizing the whole corps of the facultie; viz. The materiall, mathematicall, mechanicall and legall parts, intimating all the incidents to fees and possessions, and whatsoever may be comprized vnder their matter, forme, proprietie, and valuation. Very pertinent to be perused of all those, whom the right, reuenew, estimation, farming, occupation, manurance, subduing, preparing and imploying of arable, medow, pasture, and all other plots doe concerne. And no lesse remarkable for all vnder-takers in the plantation of Ireland or Virginia (London, 1610), p. 24.

50 Walter Blith, The English Improver Improved, or, The svrvey of hvsbandry svrveyed discovering the improueableness of all lands some to be under a double and treble, others under a five or six fould, and many under a teun fould, yea, some under a twenty fould improvement (London, 1653), p. 20; Blith, The English Improver, or a new survey of husbandry. Discovering to the kingdome, that some land, both arrable and pasture, may be advanced double or treble; other land to a five or tenfold: and some to a twenty fold improvement: yea, some now not worth above one, or two shillings, per acre, be made worth thirty, or forty, if not more. Clearly demonstrated from principles of sound reason, ingenuity, and late but most certaine reall experiences (London, 1649), p. 22.
Such land was described as ‘sad’, but floods could ‘serve for cheearing of grounds, and consequently for enriching of the soyle.’\textsuperscript{51} Michael Drayton, seventeenth-century England’s topographical laureate, described spring floods in such positive, emotional terms:

Through all the partes, dispersed is the blood,

The lustie spring, in flower of all her pride,

Man, bird, and beast, and fish, in pleasant flood,

Rejoycing all in this most joyfull tide.\textsuperscript{52}

The ‘pleasant’ flood water that could effect such changes in land was a mixture of a variety of different substances. As Jamie Linton reminds us, modern, transparent, fluoridated and piped ‘\(H_2O\)’ is not a transhistorical phenomena: it appears ‘timeless, natural, and unaffected by the contingencies of human history’, yet is very much a modern product.\textsuperscript{53} The waters of the sixteenth and seventeenth century that so enriched land through flooding were far from modern conceptions of \(H_2O\). Didactic agricultural literature of the period recognised the benefits of floodwater. In \textit{Feudigraphia}, under the heading ‘Water Appropriate’, Folkingham referred to ‘all swéeping or floating Waters’, which were ‘Waters falling & descending from Uplandish countreys by land-floods surrounding Fens, and other Flats.’\textsuperscript{54} Such ‘Water Appropriate’ issued forth in ‘land-flouds’, from ‘fatte Rivers and Gusts of water’ which when they soak into riverside lands ‘do very much comfort and revive them.’ A river’s flood thus ‘féedes and fattes the Earth’.\textsuperscript{55} In 1618, the effects of floods in the Cambridgeshire fenland were described as leaving land ‘as [if] it were manured by the overflowing Water’.\textsuperscript{56} River water that was prized for flooding was described by Adolphus Speed as ‘tainted water,

\textsuperscript{51} Blith, \textit{The English Improver}, p. 22; Blith, \textit{The English Improver Improved}, p. 19; Folkingham, \textit{Feudigraphia}, p. 34.
\textsuperscript{54} Folkingham, \textit{Feudigraphia}, p. 10.
\textsuperscript{55} Ibid., pp. 33–34.
couloured water, and water putrified, water thick, and fat waters in ponds’. The late seventeenth-century hydrological writer Thomas Tryon explained the virtues of river water for both agriculture and for drinking. ‘Land-Floods’, when they fall into a river ‘augment its Vertue and Goodness’. These were the ‘richest of Waters, draining and sucking into themselves the fat Saline Vertue of the Earth’. When redistributed over the earth in a time of flood, this water left behind a ‘Saline or Spiritual Quality, that does Muck such Ground, as tho’ it had been over-spread with substantial Dung’.

Flood waters that emanated from towns and cities were particularly prized. Whilst irregular, extreme flooding caused by urban industry and the unregulated dumping of waste could bring urban and agricultural needs into dispute, in general, regular, predictable and controlled floods from urban effluents were sought after. This was recognised by Fitzherbert, who as early as 1523 urged farmers to find the fattest of waters ‘that cometh out of a towne from every manes mydding or donghyll’, as it was ‘best and wyll make the medowes moost rankest’. Here, the more effluents in a stream the better, as floods deposited organic material, nourishing and improving meadows. Such praise for urban effluents is testament to the strength of local urban environmental governance that forbade the dumping of hazardous waste in town watercourses.

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57 Adolphus Speed, Adam out of Eden or, an abstract of divers excellent experiments touching the advancement of husbandry (London, 1658), p. 117.
58 Thomas Tryon, A discourse of waters. Shewing the particular natures, various uses, and wonderful operations both in food and physic, the all-wise creator hath endued this cleansing element with. I. Of rain-water. II. River or running-water. III. Spring or fountain-water. IV. Well or pump water. V. Pond or standing-water, with something concerning purging-waters. Published for the benefit of mankind. / By Thomas Tryon. Author of the Good house wife made a doctor, Country-mans companion, Monthly observations for health, &c. (London, 1696), p. 12.
59 John Fitzherbert, Here begynneth a ryght fruteful mater: and hath to name the boke of surueyeng and improueme[n]tes (London, 1523), fol. 43v; see also, Folkingham, Feudigraphia, p. 33.
butchers’ blood and urine were permitted effluents, but the dumping of other kinds of waste, particularly non-organic waste, was prohibited and seen as ‘particularly reprehensible’ by civic authorities. Archaeological evidence of such use of urban waste as an agricultural fertiliser has been found in Scotland. Waters that came from market towns were thought to be the most fertile, likely because of the sheer volume of manure produced after market days as beasts were driven to and from market centres for haulage and sale. Effluent from ‘Market Townes whose streets are paved’ was highly valued by Gabriel Plattes, who urged his readers to create ponds to store it. Likewise, Walter Blith praised floods that came out of ‘great Towns or Cities’ for the ‘unvaluable’ abundance they could produce: ‘prize them as thy Lands, for though hereby thou canst make thy Lands no more, yet thou mayst make them so much better, almost as thou canst desire.’ Folkingham argued that urban flood waters were useful not only as a fertiliser, but as a restorative for boggy and spongy ground, as ‘inversions from towne ditches, sewers, wayes, streetes Tilthes, do very much comfort and revive them.’

These positive images of rural flooding fed into concepts of a hydrological cycle that was the manifestation of the ‘wisdom of God’. Yi-Fu Tuan has shown how for later seventeenth-century physico-theologians like John Ray, the circulation of water on Earth was a mirror of God’s own perfection. In Ray’s system, floods existed to complete the water cycle. They returned water to the sea, and spread earth across the land rendering meadows and levels ‘thereby so fruitful as to stand in need of no Culture, or Manuring.’ Whilst Tuan and others discuss these ideas in the context of natural theology, transport and trade, this early modern ‘powerful fantasy of circulation’ bore considerable agricultural and economic

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61 Skelton, ‘Beadles, Dunghills and Noisome Excrements’, p. 48; Carole Rawcliffe, Communal Health in Late Medieval English Towns and Cities (Woodbridge: The Boydell Press, 2013), p. 188.
63 Skelton, ‘Environmental Regulation’, p. 98.
64 Plattes’ praise for paving is likely due to the fact that effluents were conveyed more quickly, and not left to stagnate in pools, as was a problem for several late medieval towns. Gabriel Plattes, A discovery of infinite treasure (London, 1639), p. 26; Rawcliffe, Communal Health, pp. 190–193.
65 Blith, The English improver, p. 23; Blith, The English improver improved, p. 24. See also Speed, Adam out of Eden, p. 117.
66 Folkingham, Feudigraphia, pp. 33–34.
implications.

In 1637, John Shaw provided a version of the hydrologic cycle that considered the circulation of water within the context of property relations. Shaw promised readers how to ‘order any land, so as it may retayne all the moysture that falleth thereon, and to improve it thereby’. Shaw complained that much ‘fatnesse’ was lost when ‘every showre is not received, and drunke in by the earth where upon it falleth’. By retaining all the water that fell on one’s land, Shaw claimed that not only would the fecundity of the soil increase, but that enclosing water would ‘mittigate the great Floods’ downstream. Readers’ ‘farre Remote neighbors’ who are ‘annoyed with floods’ would be saved if every landholder kept what water fell to them.

John Beale, an early Fellow of the Royal Society and committed agricultural improver, would follow this advice in the mid-century, attempting to collect all the water that passed over his property. In order to ‘loose not the fall of any waters (whether of rivers, landflouds or rayne) all are conducted to the very best advantage’.

Meadows could be improved artificially through the practice of ‘drowning’ or ‘floating’, to more regularly and predictably provide land with the benefit of flooding. The terms ‘drowning’ and ‘floating’ were used interchangeably and referred to a variety of ways of watering meadows. Two earlier forms of watering meadows better suit our modern conception of the term drowning. The most common form of ‘drowning’ was undertaken through the practice of ‘floating upwards’. This technique involved the damming of a stream of water so as to flood land upstream. Water would sit stationary upon the land, thus ‘drowning’ it. This method of watering had been common throughout Europe since the thirteenth century, and was practiced with particular regularity by monastic estates, including by the monks of Riveaulx in Yorkshire from the twelfth century. The second way of

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70 John Shaw, *How to order any land, so as it may retayne all the moysture that falleth thereon, and to improve it thereby* (London, 1637).
72 Ibid., sig. A1v, A3v.
drowning a meadow was less common, as it required a hillside with a significant gradient. Water would be introduced at the top of a hill, and would run down its face, being caught by banks and distributed across the field in ditches. This method of ‘catchworks’ combined both running and still water, but was hard to introduce where there was no gradient steep enough.76

Developments in watering in the sixteenth and seventeenth centuries enabled improving farmers to further intensify production through the use of even better controlled flooding, or ‘floating’. The disadvantage of catchworks was that they could not be employed everywhere due to topographical requirements. Whilst ‘floating upwards’ was practicable everywhere, it could hinder fertility to a much greater degree than it could aid it if practiced incorrectly.77 ‘Bedworks’ were the most technologically sophisticated way of floating a meadow. This involved levelling land and creating a network of ditches that were fed by a stream, and controlled by a sluice.78 When operated correctly, a thin film of water of about 2.5cm deep would cover the field. This was advantageous for pastoral farmers as it kept the ground above freezing in the winter and thus provided an ‘early bite’ for grass seeds, increasing the amount of grazing available for livestock earlier in the season.79 As more livestock could be kept, the ancillary benefit of increased fertiliser (manure) when those animals were ‘folded’ (pastured) on arable land made floating doubly attractive.80 John Smyth praised watering and proselytised about its usefulness to Berkeley estate farmers, claiming ‘much good is to bee done and profitt raysed in corne and grasse, by water fresh and salt’.81 Being the most labour- and resource-intensive way to float a meadow, bedworks were also the most expensive, with one scheme in Wiltshire costing £20 per acre.82 They were however potentially very rewarding: in the 1630s, John Shaw claimed to have improved land near Deptford from being worth 1s per acre per year to as much as 50s an acre.83 The additional

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78 Taylor et al, ‘Rowland Vaughan and the origins of downward floated water-meadows’, p. 35.
81 Berkeley Manuscripts, iii, p. 42.
yield of grass on water meadows has even been said to have ‘saved lives’ in colonial Concordia.84

Despite the prevalence of river flooding on the banks of the lower Severn, there is evidence for the construction of these deliberately-flooded water meadows on land directly adjoining the river. This land was in many ways ideally suited. The flat land surrounding the Severn was drained by a series of natural and man-made reens, gowts and ditches, which interconnected and issued out into the main body of the river, frequently through tidal inlets known as pills. Water would run off from as far as the limestone south-west Cotswold escarpment, from below Wotton-under-Edge and Stroud. The water heading into these channels had thus travelled across a variety of different agricultural and proto-industrial land, through arable and pasture ground, as well as through the local clothing areas of Berkeley, Thornbury and Wotton. Having had the chance to take on nutritious sediment, this water was highly prized. If land surrounding these streams could be deliberately flooded with their water, rather than saltwater, there was much to be gained.85

Identifying water meadows is difficult. The distinctive series of channels and sluices are sometimes clearly visible from satellite imagery (Figure 1.1), but have more often than not been levelled by modern agricultural machinery. However, the archaeological record shows several water-meadows on the lower Severn floodplain. Channel systems have been recorded along the River Frome at Frampton-on-Severn and Eastington on the east of the Severn, and at Aylburton, Tidenham (where there are four), and Woolaston on the west (Figure 1.2).86 These post-medieval systems demonstrate the interest in irrigating even flood-labile lands, and in the case of Tidenham, land that almost directly abutted the river.

85 A similar situation existed on the Somerset Levels, where peat soils liable to inundation were improved by deliberately flooding with silt-laden water from the rivers Parret, Tone, Isle and Yeo. This practice was known as ‘warping’. See Michael Williams, The Draining of the Somerset Levels (Cambridge: Cambridge University Press, 1970), pp. 176–7
86 English Heritage, ‘Pastscape’ <http://www.pastscape.org.uk/> (accessed 02 June 2014), monument numbers 1389511, 1389534, 1389608, 1389708 (Tidenham); 1389731 (Woolaston); 1390173 (Aylburton); 1445656 (Frampton-on-Severn); 1445658 (Eastington).
Beyond the creation of catchworks, bedworks and sluices, other hydraulic technology was introduced to floodplains in the early modern period to exploit their agricultural potential. Alteration and reclamation schemes frequently targeted low-lying riverside land, employing technological strategies to convert pasture into arable. Folkingham claimed that the most wet and overflown land could be made to yield good grass and take advantage of natural flooding, with the use of ‘Enginarie aide... to mount the water by Screwes, Pullies, Poizes, by causing Vacuums, or reinforcing of Spirits into narrow straights and Cylinders’. Several authors

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88 Folkingham, *Feudigraphia*, p. 20.
discussed the value of the ‘Persian wheel’ for watering gound, as well as other kinds of mills.\textsuperscript{89} 
Whilst some schemes drew water from several miles away, most used adjacent rivers as sources of water, using machines to supplement the river’s own flood regime.\textsuperscript{90} 

![Map of Gloucestershire water meadows](image)

Figure 1.2 The location of Gloucestershire water meadows mentioned in the text. Source: English Heritage Pasiscape. Map: John Morgan

However, not all floods were agriculturally useful, and farmers took steps to mitigate their negative effects. Farmers sought knowledge about when floods might come so that they might prepare their land and stock. Prior knowledge of variability was crucial, as changes in the variability of climate are more damaging to productive practices than changes \textit{per se}.\textsuperscript{91}

\textsuperscript{90} Gervase Markham, \textit{Markhams farwell to husbandry} (London, 1620), pp. 71–72.
Flood years were said to follow any year in which Christmas fell on a Monday.\textsuperscript{92} Alternatively, if Christmas fell on a Friday, ‘marvellous Floods in Winter’ would follow.\textsuperscript{93} Looking to the stars could predict flooding in the shorter term – French agriculturalist Charles Estienne prognosticated that ‘if the Starres doe not twinkle, or giue their accustomed glimpses... it is a signe of great store of water.’\textsuperscript{94} In the Hundred of Berkeley, pluvial flooding was anticipated in the popular idiom ‘When Wotton hill doth weare a cap, Let Horton towne beware of that’.\textsuperscript{95} Having knowledge of when rains and floods might exceed normal levels highlights the importance of predictable hydrological regimes, and regular flood patterns.\textsuperscript{96}

Floodplain inhabitants took steps to manage their flood risk, with practices that had longstanding precedents before the early modern period. Riverside ridges and furrows were attempts to optimise floodplain grazing, with the benefit of demarcating ownership and stewardship. With strips scattered between different families in different fields, these fields also distributed risk in a more-or-less equal fashion. If ridge and furrow encapsulates the communal imperative of flood liable lands, the practice of creating artificial water meadows typifies the adaptive strategies of private farmers. Ridge and furrow agriculture was common along the Severn riverbank, and occurs across the archaeological record of the lower Severn (Figure 1.3).\textsuperscript{97} Ridge and furrow agriculture was practical for several reasons: it provided a clear demarcation of who owned or worked what land in an open field, it divided and ordered land according to the work a plough team might undertake in a day, and when used in flood-

\textsuperscript{92} Markham, \textit{The second booke of the English husbandman, Contayning the ordering of the kitchengarden, and the planting of strange flowers: the breeding of all manner of cattell. Together with the cures, the feeding of cattell, the ordering both of pastures and meddow-ground: with the use both of high-wood and vnder-wood. Whereunto is added a treatise, called Good mens recreation: contayning a discourse of the generall art of fishing, with the angle, and otherwise; and of all the hidden secrets belonging thereunto. Together with the choyce, ordering, breeding, and dyeting of the fighting cocke. A worke never written before by any author.} (London, 1614), pp. 6–7.

\textsuperscript{93} Meager, \textit{The mystery of husbandry}, p. 160.


\textsuperscript{95} \textit{The Berkeley Manuscripts}, iii, p. 33.

\textsuperscript{96} Bayley, ‘Understanding large river floodplain ecosystems’, p. 154.

liable landscapes, provided shelter from inundation for both crops and livestock. Furrows were useful for draining land, and high ridges provided raised strips of land that livestock could graze on in times of flood. Furthermore, the surface of grass was increased by making the land uneven in this manner. Ridge and furrow was particularly suitable and prevalent on land that was susceptible to flooding, allowing crops and livestock to be kept out of any standing water, and aiding the better drainage of fields.

In his popular guides for husbandmen, Thomas Tusser produced rhyming memory aids to remind his readers of good agricultural practice, including flood mitigation strategies. His husbandman’s catechism included a thanksgiving for ‘Ryvers sweete alonges the Medes [meadows] to profite many things’, but there was no naivety about the dangers of this sweetness. In February, custodians of riverside lands were reminded to ‘Feede Swan and go
make hir up strongly a nest, /for feare of a flo\ud, good and highe is the best. ¹⁰⁰ Likewise, the
cultivator was to undulate his field so that floods might drain away quicker, entreated to
‘Trench redge & forough, /that water may thorough’. ¹⁰¹ This was to avoid a situation where
water might wash away the labours of sowing season: ‘Seede husbandly sown, water sorow
thy ground/ that raine when it cometh, may run away round.’ ¹⁰²

Where flood risk was significantly higher, and land required constant defence from
the damaging encroachment of waters, agriculturalists still made productive use of their
‘floodscapes’. Donald Woodward has shown how both urban and rural productive and
reproductive economies generated very little waste, and that all manner of items were
refashioned and reused. This was as true for the ‘vast, interlocking productive system’ of early
modern agriculture as it was for objects and material culture: land designated for one activity
was adapted and exploited between a variety of interest groups and practices, so that land
given over for one use was simultaneously subject to several.¹⁰³ Flood defences were lined
with earth, and were covered in grasses and other herbage suitable for sheep and cattle.¹⁰⁴
Some of the larger river defences could be up to forty feet wide at the bottom, ten feet wide at
the top, and eight feet in height.¹⁰⁵ Flood embankments could provide significant amounts of
grazing for livestock. Meadow land on the lush, low-lying alluvium in the Gloucestershire
parish of Elmore was leased out in 1668 together with rights to graze the adjoining sea wall.¹⁰⁶

¹⁰⁰ Thomas Tusser, A hundreth good pointes of husbandry lately maried vnto a hundreth good poiyns
of huswifery: newly corrected and amplified with dyuers proper lessons for housholders, as by the table
at the latter ende, more plainly may appeare: set forth by Thomas Tusser Gentle man, servant to the
right honorable Lorde Paget of Beaufert. (London, 1570), fol. 16v.
¹⁰¹ Thomas Tusser, Fiue hundreth points of good husbandry vnited to as many of good huswiferie first
deuised, & nowe lately augmented with diuerse approued lessons concerning hopps & gardening, and
other needefull matters : together with an abstract before every moneth, containing the whole effect of
the saide moneth : with a table & a preface in the beginning both necessary to be r
ead, for the better
¹⁰² Ibid., fol. 17v.
¹⁰³ Donald Woodward, ‘“Swords into ploughshares”: recycling in pre-industrial England’, The
Wicklow whale: the exploitation of natural resources in England since 1500’, Past & Present, 159
(May, 1998), pp. 43–76.
¹⁰⁴ Gloucestershire Archives [hereafter GA] D272/1/3, ‘Gloucestershire Court of Sewers General
Minutes, 1615–1631, 1635’, fol. 83r.
¹⁰⁵ William Dodson, The designe for the perfect draining of the great level of the fens, called Bedford
level, lying in Norfolk, Suffolk, Cambridge, Huntingtonshire, Northamptonshire, Lincolnshire and the
¹⁰⁶ ‘Elmore’, in Simon Draper (ed.), The Victoria County History of Gloucestershire, Volume XIII
(London: University of London, 2010), GA D326/E52, ‘Lease: Meadow and length of sea-wall at
Elmore, 1668’.
On the east coast, sea walls were frequently used to pasture sheep, but more destructive animals like cattle or rabbits were banned.\textsuperscript{107} In Cambridgeshire, Julie Bowring has found numerous examples of how flood defences were put to productive use. Across the seventeenth century, farmers allowed their pigs and cattle to graze fen and river banks, whilst fowlers used them as convenient places to hide and catch birds.\textsuperscript{108} These practices were officially forbidden by the Bedford Level Corporation (the statutory drainage authority), but where rights to graze sea and river banks were apportioned, they were highly prized and sometimes bitterly fought over.

Rights to graze sea banks were contested in the courts of Exchequer. In Spalding and Weston in South Holland, inter-commoned sea banks were constantly watched over by townspeople.\textsuperscript{109} Thomas Frenche, ‘an anncyent man of the... towne of Spaldinge’, would join with other townsfolk to ‘drive & chase off the said banck such Cattle of Mr Sherrards... as came upon the said banck to depasture and would not suffer them so to feed & despasture ther because he was not resydent wthin the said towne of Spaldinge.’\textsuperscript{110} Other inhabitants complained that the ‘Covetous & hard dealings’ of local non-resident landowners encouraged their stock to ‘eate upp the said sea bancke & drove so neare & so bare that the poore Inhabitants who heretofore have had great reliefe for their sheep & other Cattle are now deprived of all benefitt of the same’\textsuperscript{111}


\textsuperscript{109} The National Archives [hereafter TNA] E 133/7/1110, ‘George Hodgson and William Wright v. John Harington and Richard Evington, 1593’, m. 9, deposition of Robert Rowse of Weston, husbandman, aged about 70.

\textsuperscript{110} Ibid., m. 1, deposition of John Stroughting of Algarchurch, Holland, yeoman, aged 37.

\textsuperscript{111} Ibid., m. 7, deposition of Thomas Barrond of Spalding, fisherman, aged 66. Such disputes were more characteristic of riverine floodplains, rather than estuarine floodplains. Banks raised in riverine floodplains served a dual purpose of providing additional capacity for a channelized river, whereas estuarine defences, particularly those in the Vale of Berkeley and South Gloucestershire were designed...
Lands the other side of these walls were also put to good use. Along the upper Severn estuary in Gloucestershire riverside pasture was known as ‘warth’ land (Figure 1.4). This land was turned over to seasonal grazing, with stock accommodated in the spring and summer, whilst it was subject to recurrent seasonal winter flooding that rendered it unusable for months at a time. These undefended ‘warths’ were exposed to the large tidal range of the Severn, receiving clayey and sandy deposits at each inundation. The lower Severn was noted for the thick, silty inundations it caused on surrounding lands. Robert Nobbes, in his fishing manual *The compleat troller* (1682) remarked on the

*Gulph* or *Whirl-pool of Waves*, raising up the Sand fro the bottom, winding and driving upon great heaps; sometimes she overfloweth her Banks, and roveth a great way upon the face of her Bordering grounds, and again retireth as Conqueror into her usual *Channels*.  

The Severn deposits sediments that contain more clay than sand, with the most clayey sediments deposited on estuarine marshes, like warths.  

Clay particles are much finer than sand, and due to their large collective surface area, help soils retain nutrients far better than sand. Early modern agriculturalists recognised the qualities of these ‘sweet, thick, [and] fat’, ‘muddy and pudly’ clay waters. Michael Drayton described how the Severn ‘[h]urls up the slimy ooze’ onto the land. Thus, the Severn’s recurrent deposition of beneficial sediments on warth lands improved their fertility and value as grazing land.

to defend against a high tidal range. Not intended to create space for flow capacity, these defences were much steeper. To take the example of the sea wall at Oldbury on Severn, its thirty foot base, twelve foot height and ten foot top would have had a gradient of 1:0.84, unmanageable for cattle and sheep. Dimensions from GA D272/1/3, ‘General Minutes, 1615–1631, 1635’, fol. 45v.

112 Robert Nobbes, *The compleat troller, or, The art of trolling with a description of all the utensils, instruments, tackling, and materials requisite thereto, with rules and directions how to use them : as also a brief account of most of the principal rivers in England / by a lover of the sport.* (London, 1682), p. 76.


Warths that had accreted naturally were often held in common, whereas deliberate attempts to create warths by ‘inning’ or warping’ usually led to the resultant land being privately owned. ‘Warping’ involved driving stakes into or erecting a fence on the foreshore so that at each inundation sediment would be retained and land would accrete faster.¹¹⁷ From the 1570s onward, the crown took an increasing interest in these lands, having taken the legal

advice of Thomas Digges that all land ‘won’ from the sea was rightfully its own. Surveys conducted in pursuance of the expropriation of these lands reveal their worth. A survey of 1653 reveals that 112 acres of warth land in Frampton, Saul and Fretherne (Gloucestershire) was worth twelve pence a year and yielded £3 17s in rent, which, surveyors thought, could be ‘improved’ to £73 a year. These warths ‘were formerly within the course of the great Channell of Saverne and recovered thence by the providence of God’. At Arlingham, warth land had been subject to hundreds of years of deposition and erosion. The size of the warth had fluctuated with the abilities of the inhabitants of Arlingham to reclaim and defend land from the sea beyond its oldest sea wall. Without sustained investment in maintaining the area as entirely solid ground, the community managed the remaining lush, green, but undefended meadow between themselves. Unsuitable for intensive arable farming, the warth was given over to communal grazing.

Coastal marshes were also deeply enmeshed in this balancing of risk and reward. Marshes as ‘shifting, fragile, uncertain grounds’, were subject to inundations by high spring tides if left unembanked, and if embanked were at risk of shrinkage as they dried. This was land that was likely undergoing either a process of accretion or erosion. When accreting, such lands went from ‘bare, sandy, muddy, ozey, sleechy, or slymy grounds’ to ‘green, swarthy, and depasturable’, as tides and floods deposited sediments that raised the level of the ground, causing the water to ‘desert’ it. Some marsh was so slippery that it was difficult to quantify. In 1607, the jurors of Gedney, Lincolnshire refused to estimate the amount of marsh land on the seaward edge of their parish, as at some time there would be one hundred acres, and at

119 TNA E 317/Glos/9, ‘Fretherne, Saul, Frampton: survey of marsh lands called “the Warths” alias “the new recovered lands”, 1653’.
120 Ibid., fol. 4.
others six foot deep seawater. Carefully watched and managed, marshes could provide rich pasture, reeds, fishing and fowling. These were not untenably marginal landscapes, but landscapes which were highly valued with rewards for continued settlement considered greater than potential risks. Saltmarshes that accreted beyond sea walls could provide useful pasturage for commoners’ cattle. In 1608, three hundred acres of saltmarsh in Surfleet used in common by the inhabitants of Surfleet remained in common as they were worth just a penny an acre as they were at ‘every change and full of the moone subject to the ouflowing of the saltwater’. Saltmarsh was particularly highly prized by Estienne, who claimed they were ‘the most chiefe nurceries and bringers forth of fat cattell that are knowe, and especially Sheepe’. Warths were equally subject to the vicissitudes of rivers. The ‘New Grounds’ at Slimbridge, bitterly fought over by rival commoning interests, the Lords Berkeley and the Crown throughout the seventeenth century, were said to have been continually in flux. In 1609 Henry Gylman, a yeoman aged sixty, deposed that ‘the sayd newe recovered groundes have beene within the tyme of his knowledge and remembrance much more in quantitie which have binne and daylie ys worne and eaten awaye with the violence of the water’.

There was a significant degree of risk associated with the sustained use of marshes, made particularly apparent in the local records of Gloucestershire parishes. At Almondsbury the local parish register records how the saltmarsh was subject to exacerbated catastrophe during widespread flooding in 1607 with thousands of grazing sheep and cattle drowned. In 1703 at Henbury the coastal community that utilised the marshes was devastated, with floods

126 James A. Galloway, ‘“Tempests of weather and great abundance of water”: the flooding of the Barking marshes in the later middle ages’, in Matthew Davies and James A. Galloway (eds), London and Beyond: Essays in Honour of Derek Keene (London: Institute for Historical Research, 2012), pp. 67–83, p. 68.
128 TNA E 134/6Jas1/East34, ‘Exchequer: King’s Remembrancer: Depositions taken by Commission. James I. ? v. ?; Right and title to lands gained from the sea, lying between Surfleet and Gosberkerk, being saltmarsh’, deposition of Richard Sirleprice of Surfleet, yeoman, aged about 60.
129 Estienne, Maison rustique, p. 492.
destroying fishing communities, their inhabitants and their livestock.\textsuperscript{131} Before embankment, Awre warth was said to have been overflowed by ‘Candlemas springe or Lady day fludd, palmeson tyde or fludd, St James fflud & divs fludds in August, September and November yearly at which times the same or the greatest parte thereof is overflowen with the River of Seaverne.’\textsuperscript{132}

A distinction was made between more and less risky low and high marsh ground. Low marsh that lay beyond the sea wall, where the sea was still in retreat, could command only a penny per acre in sixteenth-century Lincolnshire due to its widespread availability and associated risks. Better defended high marsh could reach up to two shillings an acre.\textsuperscript{133} Prices are a rather blunt measure of risk however, and this was acknowledged in Gloucestershire leases. John Smyth leased out newly reclaimed land at Slimbridge, with the proviso that his tenants could use any ‘certaine other newe grounds nowe begininge to arise and to beare weeds and grasse’, and that Smyth would maintain all flood defences, drainage channels and meet all taxation levied on the land.\textsuperscript{134} Reclaimed lands at risk of flooding were thus recognised as valuable resources, but ones that came with hazards that tenants might expect to be compensated for.

Lands that were unsuitable for arable farming and remained undrained were capable of supporting communities whose economies were based around subsistence hunting and gathering activities. Freshwater floodplains support some of the highest levels of biodiversity on the Earth, and early modern floodplain inhabitants took advantage of this.\textsuperscript{135} Whilst areas like southern Gloucestershire and the Fens of Lincolnshire were predominantly pastoral economies, based on meat and dairy, other activities supported this specialisation, particularly during winter flooding of pastures.\textsuperscript{136} Common marshland in Moulton, Lincolnshire, that was

\textsuperscript{133} Rippon, “Uncommonly rich and fertile”, p. 53.
\textsuperscript{134} GA D2957/274/3, ‘Slimbridge: Lease from John Smyth, gent to Robert Stitche and Virgill Crips, yeoman 14 March 1628’.
\textsuperscript{135} Moss, \textit{Ecology of freshwaters}, p. 158.
\textsuperscript{136} Gerald A.J. Hodgett, \textit{Tudor Lincolnshire} (Lincoln: History of Lincolnshire Committee), p. 66.
inundated at the highest spring tides began to bear samphire and crab grasses as daily inundations became less frequent. In the fens of Holland, common rights over the gathering of down, kindling, willow, rushes, reeds, peat, hemp and flax were regulated. Markham claimed that otherwise ‘useless’ wet land could be ‘imployed’ with willows and osiers, which despite being ‘estéemed but as wéedes and no Woods’, were useful for fuel and a variety of agricultural implements from horse harnesses to fish leaps. Later in the period, and primarily amongst authors who advocated capital-intensive drainage and watering enterprises for enhanced pasturage and conversion to arable, these products were denigrated. Timothy Nourse praised land liable to flood, so long as it was sufficiently managed to keep ‘Rushes, and such like Trash’ down, as they impeded the area available for new cash crops.

Almost all of the unique materials found in flood liable and estuarine lands were used productively, regulated or sold by those who lived on and worked the land. Sediments dredged from the river Trym at Kingsweston, Gloucestershire, were used to create mortar that was said to be stronger than rock. The pastoral economy was sustained by fertile pasture lands

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140 Markham, The second booke of the English husbandman, p. 77.

141 Timothy Nourse, Campania foelix, or, A discourse of the benefits and improvements of husbandry containing directions for all manner of tillage, pasturage, and plantation (London, 1700), pp. 50–51; Blith, The English improver, p. 22; Samuel Hartlib, Samuel Hartlib his legacie; or An enlargement of the Discourse of husbandry used in Brabant and Flaunders (London, 1651), p. 57.

142 BRO 12964/1, ‘Volume of mounted letters and other papers 1679–1742’, fol. 27.
boosted by various kinds of water-based decompositional material. Slime left at the bottom of drainage ditches and on intertidal rocks was used as fertilizer. In the Sussex manor of Barnhorne, pasture land that was turned over to tillage was covered with ‘sleech’ (an ‘oozy ditch sludge’ rich in nutrients), in a practice known as ‘slychyng’. Kent and Sussex farmers also used ‘Sea-mud & Sea-Owse’ to improve their chalklands. This practice of sleeching was an important intensification technique that could improve soils for cultivation. Markham advised his readers to muck their land ‘with the Casting of some Ditch, Lake, Pond, &c. Instead of Dung’. In Feudigraphia Folkingham remarked on the nutritious value of the ‘fatte and slimie substance or slubbe’ that abounded in areas liable to inundation, and the improvement it could bring to ‘Boggie and spungie grounds’. This was the same slime that Mark Anthony refers to in Shakespeare’s Anthony and Cleopatra as providing abundantly fertile alluvial arable land: ‘the higher Nilus swells./ The more it promises: as it ebbs, the seedsman/ Upon the slime and ooze scatters his grain./ And shortly comes to harvest.’ John Leland observed that Romney Marsh was ‘mervelus rank grownd for fedyng of catel, by the reason that the gresse growth so plentefull apon the wose sumtyme cast up ther by the se.’ In Gloucestershire, this slime and ooze was cited in leases and manorial customs, to protect it from those claiming common rights to it. Alternatively, slime was used as part of the weir

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143 P.F. Brandon, ‘Agriculture and the effects of floods and weather at Barnhorne, Sussex, during the late Middle Ages’, Sussex Archaeological Collections Relating to the History and Antiquities of the County, 109 (1971), pp. 69–93, p. 77. As well as being used productively in agriculture, contemporary natural philosophers placed slime at an important point in the creation story, at the very creation of solid earth: as light, solid particles descended upon the waters of the earth, they ‘mixing there with that unctuous substance... did compose a certain slime or fat soft earth spread upon the face of the waters’.

144 Hartlib, Samuel Hartlib his legacie, p. 45.

145 Gervase Markham, The husbandman’s jewel (London, 1695), p. 3.

146 Folkingham, Feudigraphia, p. 24.

147 William Shakespeare, Anthony and Cleopatra, II. 7. 20–23. See also Titus Andronicus, III. 1. 25–27: Titus: ‘Shall thy good uncle, and thy brother Lucius/ And thou, and I, sit round about some fountain,/ Looking all downwards to behold our cheeks/ How they are stain’d, as meadows, yet not dry./ With miry slime left on them by a flood?’

148 John Leland (ed. Lucy Toulmin Smith), The Itinerary of John Leland In Or About the Years 1535–43 (5 vols, London: George Bell and Sons, 1907–10), iv, p. 67.

149 GA D2172/1/65, ‘Littleton-on-Severn: A rock weir in the Severn against Farm Warth, 1670’; Tenants in Aust noted in their presentation of the customs of their manor that ‘the wose under the west end of the clyf wythe towear playes the won called the Rocke weare the other called Bayes weare partaynithe to my lady’. BRO AC/M/13/4, ‘Manor of Hamman Hay in Awste Brief note of all the old ancient customs of the manor written and presented by the tenants, n.d’.
itself to trap fish, as in Sidney’s Arcadia ‘fish sure tryall hath of muddie slime’. In the early eighteenth century, owning rights to ‘flaggs, fishing and scouring’ became unprofitable for the lord of the manor Steeple Claydon (Buckinghamshire) as he disputed with the inhabitants over who should now carry the burden rather than the right of river scouring. Other techniques that allowed more precise application of nutrients to soil, such as liming, were available to fertilise land, superceding ‘ooze’ and ‘sleech’.

In the Fens, fishing and fowling were important parts of the regional economy, with their products being sold as far away as London. In the Lincolnshire Fens, fowling using ‘decoy’ ponds was particularly popular and effective. In 1722, Defoe remarked on the ‘incredible’ amount of wildfowl taken in this manner in the undrained fens. Fish could prove a valuable product of frequently flooded habitats. Several writers urged their readers to use ‘spongy’ and ‘marshy’ land in low-lying vales to create ponds and rear fish. Placing ponds in these grounds linked agricultural and pescicultural activities in a mutually beneficial nutrient cycle. Pond muck provided useful fertiliser, whilst manure that washed into ponds stimulated eutrophication, which provided nutrients for species like carp, who could survive in oxygen-depleted habitats. Outside of these more managed aquatic ecosystems, fish also utilised seasonal and extraordinary flooding. Certain fish species are attuned to rising and

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150 Philip Sidney, The Countess of Pembroke’s Arcadia (10th edn, London, 1655), p. 224. South-westerners continued to find use for ‘slime’ into the nineteenth and twentieth centuries. Slime that collected on piles of bricks discarded into the tidal river Parrett was used to make ‘Bath’ bricks, scouring materials used for cleaning and polishing. Williams, The Draining of the Somerset Levels, p. 216n.


154 Heresbach, Foure booke of husbandry, ff. 173–173v; John Tavener, Certaine experiments concerning fish and fruite: practised by John Tauerner Gentleman, and by him published for the benefit of others (London, 1600), p. 3; Gervase Markham, The English husbandman: The first part: containing the knowledge of the true nature of every soyle within this kingdom: how to plow it; and the manner of the plough, and other instruments belonging thereto. Together with the art of planting, grafting, and gardening after our latest and rarest fashion. A worke neuer written before by any author: and now newly compiled for the benefit of this kingdom. By Garuis Markham (London, 1613), sig. F4v; Markham, Cheape and goo husbandry for the vwell-ordering of all beasts, and bowles, and for the generall care of their diseases (London, 1614), p. 158; Markham, Markhams farwell, p. 62; Meager, The mystery of husbandry, p. 47.

falling river waters and spawn during flood periods so that predictable, routine flooding in areas like the fenland provides excellent spawning conditions.¹⁵⁶ Pike and carp were particularly suited to undrained medieval and early modern fenland, as they could lay their eggs on submerged vegetation.¹⁵⁷ Carps reared in ponds that were frequently inundated were said to use raised water levels to eat bordering grasses and become ‘as fat as Hogs’.¹⁵⁸ The best time for angling was when river waters were ‘clearest’, just after a flood.¹⁵⁹ The Severn Estuary, with its high tidal range, and position as a point of transition from fresh to salt water provided habitats for a diversity of anadromous migrating (saltwater dwelling but freshwater spawning, like salmon) and catadromous migrating (freshwater dwelling but saltwater spawning, like eels) fish, and was home to over fifty different species in the seventeenth century.¹⁶⁰

Fishing was however a highly regulated practice that was beset with complex systems of use rights. Hoffmann argues that in England, pesciculture retained a ‘strong tinge of aristocratic ostentation or dilettantism’ in the early modern period, as marine species predominated in most diets.¹⁶¹ Ponds and regalian rights to fish were reserved by manorial lords. The predominance of fishponds has been seen as symptomatic of ‘the extinction of customary rights in favor of private property’ in the period.¹⁶² In the Hundred of Berkeley, customs regulated who could fish with nets and garths after high tides on certain days, with the Lord and the Parson having their own designated tides, on Thursdays and Fridays respectively.¹⁶³ Such customs were in place to regulate the Lord’s natural resources. All of these customs were designed to ensure that there was opportunity for the biotic and calorific

¹⁵⁸ Blagrave, *New additions to the art of husbandry*, p. 15.
¹⁶³ *Berkeley Manuscripts*, iii, p. 322.
capital of the hundred to be retained within its bounds. During the first half of the seventeenth century, as customary claims hardened in response to a scarcity of resources, these customs were challenged and reinforced.  

164 Some ‘ancient customs’ were revived, such as when Lady Elizabeth Berkeley reinstated the practice of hanging freshly caught fish from the Berkeley market cross for one hour before it could be exported out of the hundred.  

Extraordinary flooding could upset this lordly dominion over fishing. When waters had receded following a well-stocked river bursting its banks, an anonymous pamphlet author claimed local people were known to pick up fish from the ground for consumption.  

Drayton claimed the Severn bore (the cyclical tidal wave that flowed up the river) ‘makes the scaly brood/ Leap madding to the land affrighted from the flood’.  

However, fish strayed outside of private ponds and into drainage ditches. Subsequent attempts to catch them could precipitate flood risks, due to the nets and cages used by fishermen, and courts of sewers in both Gloucestershire and Lincolnshire banned fishing in drainage ditches. More serious inundations that left land underwater for longer stretches of time could precipitate more sustained fish-gathering operations. Immediately after, and sometimes even during, a flood, certain fish species were more abundant, and provided floodplain inhabitants with additional sources of sustenance and income. After heavy storms in October 1374, sea defences at Barking marsh (modern day east London) were breached, submerging previously cultivated land. This drove local farmers initially to fish the newly re-flooded marsh as a source of sustenance for their swine, and later to erect nets and engines to catch fish on a commercial scale (much to the annoyance of fishermen upstream who relied on downstream areas to acts as nurseries for young fish which they would catch when more developed after upstream

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164 In 1607/8 William Denning and ‘others of the fforest side of Deane’ challenged the Berkeley’s practice of ‘galeable’ fishing (customs restricting the sale of fish in the Hundred of Berkeley), only to be defeated in Chancery. Berkeley Manuscripts, iii, p. 321.

165 Berkeley Manuscripts, iii, p. 322.

166 T.I., A miracle, of miracles As fearefull as euer was seene or heard of in the memorie of man (London, 1614), sig. D3v. Given flood pamphlets’ proclivity towards inversion as a rhetorical device, this image should be viewed cautiously. See chapter 3, below.


migration).\textsuperscript{169} In Shropshire, when moorland intercommoned between the villages of Cherrington and Great Bolas flooded, disputes arose over who may fish the temporary lake, as during unflooded times, fishing rights were valuable, marketable assets which were strictly controlled in terms of who may fish and where.\textsuperscript{170} Flooding thus provided inconstant opportunities for the development and temporary exploitation of pesciculture, both structuring and frustrating social boundaries placed around resources.

Mills were another prominent feature of floodplains, with their myriad watercourses, and estuaries with their added tidal energy source. Water was the preferred source of power for lords who operated mills.\textsuperscript{171} They provided a useful, but not overwhelmingly abundant source of energy, yet were an important physical statement of power symbolic of their owners’ wealth and control of the landscape.\textsuperscript{172} Milling on floodplains utilised natural and man made drainage features, generating increased flood risk for nearby landholders. This could lead to resentment among the local population. The Caernarvon Quarter Sessions at Epiphany 1542 records how John ap Harry ap Rhys ap Gruffydd ap Hwl cyn of Castell-mai in Caernarvon, yeoman, forcibly and illegally evicted a water miller, breaking down his mill pond banks and diverting the course of the river.\textsuperscript{173} The perceived self-interest of millers could be the basis of resentment. A large marine flood in January 1607 had destroyed much of Gloucestershire’s sea defences, and in the proceeding weeks, salt water flooded drainage ditches at each high tide. Milling at Oldbury-on-Severn exacerbated these salt water floods. The miller had taken advantage of the increased volume of tidal water available, and impounded water behind

\textsuperscript{169} Galloway, ‘Tempests of weather’, pp. 74–78.
floodgates to provide the mill with more power, for longer. Disadvantaged farmers insisted that two thousand acres of pasture was drowned as a result. Whilst the farmers sought to rebuild their lives after an unprecedented salt water flood, Oldbury’s miller sought to gain, using newly powerful tidal surges to power mills for longer. In the same year, milling on the river Lea that exploited the river’s drainage of surrounding marshland threatened to reflood much of it, as twenty mills crowded on 10km of the river between Walthamstow and the Thames, causing persistent friction between millers and other floodplain users. In 1677 farmers upstream from a mill at Berkeley found their meadows ‘overflowed... drowned [and] much endamaged’ by the damming of drainage ditches to provide power for a corn mill. The farmers came together to secure a lease on the mill complete with a right to dismantle the floodgates and waterwheel to ensure the continued viability of their meadowlands. In both of these examples, the productive potential of the floodplain was highly exploitable. However, the activities of millers invoked a political economy of risk that, if pushed too far towards the exploitation of water resources for private gain, provoked the reassertion of the interests of the traditional pastoral economy.

Elsewhere at times of damaging flooding, the need for action to mitigate and alleviate problems caused by flooding were turned to economic advantage by local people. On the floodplains of Gloucestershire, people eeked out an existence with recourse to a makeshift flood economy. At Lower Lode, a crossing of the Severn below Tewkesbury, the ferryman charged passengers an extra ‘flood penny’ for carriage over the river in times of flood, presumably to recompense him for the extra distance travelled. In November and December 1646 large storms ravaged the sea defences of South Holland. The Spalding commission of sewers paid local men and their sons a shilling per shift for working to repair the walls and

176 GA D2957/41/47, ‘Lease of a corn mill, millhouse, floodgates and piece of ground below the Castle in Berkeley for 100 years, the floodgates of the said mill to be used to prevent floods on the lands of the above tenants, each paying 15 pence an acre on their holdings. With schedule of names and holdings. 11 June 1677’
177 GA TBR/B2/41, ‘Brief for counsel as to Overlode ferry, including abstracts of depositions’. 
To collect reeds, stakes and faggots from the fens day and night. After the devastating flood of 1607, the Gloucestershire commission of sewers ordered over £600 worth of defence works to be completed, much of which would be done by hired labour from within the affected communities. The rhythm of the daily inundations of the foreshore structured the nature of more routine work. In 1725 at the often threatened parish of Oldbury on Severn, labourers were paid for the number of tides that they spent working on repairs to the sea walls. In late-medieval and early modern Wels (Austria), such post-flood reconstruction accounted for ten to twenty per cent of carpenters’ annual turnover.

The communal imperative

These were thus some of the ways that agricultural landlords, tenants and communities could exploit floodplains. Each of the modes of production required a specific set of social relations. To sustain pastoral economies, limits to grazing were required. To construct and maintain water meadows, enclosure and management was necessary. To maintain forageable resources for any length of time, quotas were imposed and access limited. Whilst these practices all utilised natural processes, they were all inherently social as well. This section then addresses the ways in which natural processes and the social order were managed on floodplains, first addressing the communal structures invoked and then the action communities took.

Communal structures

The parish provided a convenient level of government with which to direct aspects of the floodplain economy. Alongside the administration of the ecclesiastical and religious life of communities, parishes regulated their local environments, particularly where communally owned land was concerned. Associations smaller than the parish existed, but the parish was distinguished by its social, economic, and religious function, and its ubiquity throughout the

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178 Lincolnshire Archives, Spalding Sewers 474/a, ‘A note of workmen that did worke in the three stormes’, 1646.
180 GA D866/E7, ‘Labour accounts and memoranda, accounts and notes of the sale of cheeses, notes on work done on the sea walls [at Oldbury-on-Severn] and accounts as churchwarden of Thornbury, 1730’.
country. Parishes had institutionalised administrations that encouraged communal participation in the management of common financial and material resources. This corporate, fiscal character made the parish important in early sixteenth-century flood defence organisation. In the Somerset parish of Yatton, on low-lying land 3km from the Severn Estuary, churchwardens fastidiously recorded flood defence expenditure. Throughout the middle decades of the sixteenth century, the churchwardens of Yatton recorded numerous examples of paying for ditching, scouring, and the construction and maintenance of a sluice.\footnote{Edmund Hobhouse (ed.), \textit{Church-Wardens’ Accounts of Croscombe, Pilton, Yatton, Tinitihull, Morebath, and St. Michael’s, Bath, Ranging from A.D. 1349 to 1560} (Bath: Somerset Record Society, 1890), p. 80, p. 139, p. 144, p. 157, p. 160, p. 162, p. 165, pp. 170–172.}

Parishes that held land subject to inundation, either beneficial or detrimental to its value, often had customary arrangements for resource management. As officers of local government, parish officials were capable of enforcing local customary rights and responsibilities. Arlingham’s lush communal warth was regulated by the parish, which fined users for overgrazing, as parishioners sought to exploit a common riparian resource for private gain.\footnote{See below.}

The parish also kept a ‘ditch book’ to ensure that it was able to maintain the drainage of the peninsula, as did the Severnside community of Aust.\footnote{GA D18/407, ‘A True and Just Account of all and Every the Ditches, Gates and Churchwalls belonging to the several Estates in the Parish of Arlingham in the County of Gloucester, 1746–53’; GA D18/409, ‘A True Copy of the Old Ditch Booke to whom the charge of Scowring the Horsecroft Ditch from Westmarsh Waine Bridge to Severne doth belong with the particular sum that each house of Husbandry and cottage within the parish of Arlingham Ought to bee Charged with for the same faithfully Transcribed per me John Rowles’; BRO AC/AS/21/1, ‘Aust, A Coppie of a writinge that was Taken out of an old parrish Booke in The yeere 1650’, fols. 1v–4.}

In Lincolnshire and Norfolk, dike reeves were a common addition to the traditional parish offices of churchwarden, constable and overseer in coastal, lowland and marshland parishes. Dike reeves were appointed to oversee the upkeep and maintenance of sea walls and river banks that kept parts of the parish from inundation at high tide and times of heavy rain. The precise relationship between the dike reeve and other parish officials varied from parish to parish; in some areas of Lincolnshire the office of dike reeve was associated with churchwardens (Billingsborough), parish constables (Benington, South Cockerington), membership of the vestry (Cowbit, Pinchbeck) or, in urban areas, town administrations
There is no surviving evidence for the parochial dike reeve in South Holland prior to the 1570s, suggesting that parochial administration of the office was an early modern phenomenon. At Spalding and Pinchbeck, the parishes each elected fen reeves responsible for enforcing local fen customs. The two parochially elected reeves would be supplemented by two reeves appointed by the estate steward of the prior of Spalding in the pre-Reformation period. The parish proved a useful administrative unit for flood defence maintenance, with counties subject to repeated marine, fluvial and pluvial flooding like Norfolk and Lincolnshire, using it to integrate flood defence requirements within the community. The incorporation of water government within parochial offices was part of the wider expansion of the parish as a communal body and unit of government in the sixteenth century.

Disputes between individuals and communities were more commonly addressed in manorial courts. Manors were the basis of property holding in sixteenth-century England, with most land held on a variety of different leases from a lord, who had stewardship over the manor. The manor was an institution and community founded on property rights and obligations and thus its court was where most water regulation took place before the advent of more specific commissions. In Gloucestershire, manorial courts were used to restrict the antisocial exploitation of riparian resources. On the north bank of the Severn Estuary, the manor of Ruddle repeatedly dealt with nuisance works. Robert Wytte was repeatedly presented and fined for diverting a watercourse and installing a barrage in the river.


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Likewise, where cattle overgrazed common alluvial meadows, owners were fined in manorial courts.\(^{190}\) Manorial courts could however be circumvented. Robert Wytte secured a lease from the Lord Keeper of the Privy Seal in 1617 to place engines, mills, and other structures in the river to reclaim agricultural land.\(^{191}\) The Crown claimed rights to all land on the ‘foreshore’, be it recovered from the sea by embanking, drainage, or through a change in watercourse direction. Wytte, a substantial yeoman farmer, was able to go above and beyond territorially bounded manorial courts to secure riparian rights to lands newly won and uncovered from the Severn through a lease from the Crown. Flooding-related disputes were so common in some English manors that courts appointed dike reeves to oversee upkeep and maintenance. In the manor of Sutton Holland, Lincolnshire, the court elected two different types of dike reeve: the dike reeve of the freeholders and the dike reeve of the copyholders.\(^{192}\) Such a distinction pre-empts disputes over copyhold and freehold flood defence responsibility that erupted in later courts of sewers.\(^{193}\)

Commissions of Sewers were the main statutory innovation in water resource management in early modern England. ‘Sewers’ referred to drainage ditches, sea walls, and other artificial or managed hydraulic technologies. Commissions of Sewers were special governmental-judicial bodies, authorised by the crown to operate at county level and below to administer flood defence and drainage works. Given their larger territorial remit and importance for the process of state formation in the period, the discussion of Commissions of Sewers is reserved for the final chapter, on flooding and state formation.

These levels of government were linked and interacted with one another. Commissions of Sewers made use of the existing political geography of areas they administered. In Gloucestershire, the commission relied on the sub-manorial office of the

\(^{190}\) Robert Wytte presented for diverting a watercourse, to pay 40s fine, and 3li a fine if not done by St Michael’s next.\(^{190}\) GA D265/M14, ‘Ruddle court rolls, vol. 10’., p. 5.
\(^{191}\) GA D421/T2 ‘... the New Warth in Awre and any ground gained from the R. Severn from Fullmeadow Pill to Brenspill in Awre [limits detailed] with fishing rights, 1617’.
\(^{193}\) cf. Robert Callis, *The reading of that famous and learned gentleman, Robert Callis ... upon the statute of 23 H.8, Cap. 5, of Sewers, as it was delivered by him at Grays-Inn in August, 1622*. (London, 1647), pp. 102–14.
tythingman to deliver orders and collect rates, as well as using the tythings as groups responsible for flood defence maintenance.\textsuperscript{194} The churchwardens of Yatton were forced to sell the parish’s silver cross due to ‘beyng chargyd... by the commyssyonars sewards’.\textsuperscript{195} In 1671 in the South Holland parishes of Cowbit and Peakhill, Commissioners of Sewers leaned on the parochial office of dike reeve to encourage the drainage of 100 acres of low ground between Peakhill and Backgate Angle. Here this work was encouraged by a petition from the inhabitants of Cowbit and Peakhill, who, dissatisfied with their ability to compel their local officials through recourse to the resources of the parish, took their complaint to the county Commission of Sewers, which then acted upon and through those problematic parish officials.\textsuperscript{196} The at times abstract limits of a commission’s jurisdiction, working at a level seemingly removed from parochial and neighbourly life, were intimately bound up with traditional social and political associations, like the tything and the parish.

\textbf{Communal action}

The threat and reality of flooding could invigorate existing communities and engender new ones, as groups organised around the regulation of risk. Charles Phythian-Adams has argued that ‘different broad patterns of drainage have always tended to provide the most influential matrices for the creation of human territories’.\textsuperscript{197} Following more recent research oriented specifically around water resources, this section argues that flood risk created more dynamic communal formations, that were less determined by a hydrological matrix, and more responsive to the changing uses and threats of water resources. Alan Mikhail has shown how in Ottoman Egypt ‘communities of water’ organised around ‘specific social and ecological ethics’ focussed on collectively managing irrigation, and Mark Jenner has argued that water supply in early modern London created new collectivities and ‘conduit communities’.\textsuperscript{198}

\textsuperscript{194} GA D272/1/1–3, ‘General Minutes’, 1583–1635, \textit{passim}.
\textsuperscript{195} Hobhouse (ed.), \textit{Churchwardens Accounts}, p. 160.
\textsuperscript{196} LA COWBIT PAR/18/3/1, ‘Order from the Court of Sewers [Cowbit]’, 1671.
Similar communal formations can be observed organised around early modern flood risk. The aforementioned tidal milling dispute in Gloucestershire in 1607 brought together the affected communities of Kington, Moreton, Oldbury and Rockhampton. They came together to petition the Gloucestershire Commission of Sewers to regulate milling, emphasising the anti-communal attitude of the miller, against a moral economy of risk sharing. His milling was ‘for the pryvatt commodtye and profit of one particular person for the gaine of 20 marks yearely’ (about thirteen pounds), at the costs of ‘the general losse hurt and damage’ of two thousand acres, and the loss of five hundred pounds yearly.\footnote{GA D272/1/1, ‘General Minutes, 1583–1606’, p. 51. This language is redolent of the appeals to the ‘common good’ in fen drainage disputes (see chapter 4), also remarked on in Paul Warde, Economy and Ecology and State Formation in Early Modern Germany (Cambridge: Cambridge University Press, 2006), p. 336.} The Commissioners of Sewers then restricted milling on pain of a forty pound monthly fine. It took the collective action of four communities of farmers across two parishes to re-establish the previous balance between milling and farming. The freshwater case at Berkeley brought together tens of tenants against a single miller. The lease for the mill bound together nineteen tenants, and was witnessed by a further seventeen.\footnote{GA D2957/41/47, ‘Lease of a corn mill’.} This dispute over the activities of one miller invoked the collective action of thirty-six individuals in opposition, engendering a community of shared interest, and invoking further local kinship ties as witnesses.

Where individuals breached local expectations relating to warth lands, they were punished. At Arlingham a series of fines was instituted and recorded in the parish register, both as a record of payment, and as a bond to future conduct. Little leeway was given to offenders, and punitive regulatory measures cut across the social spectrum in an effort to safeguard the resource and its traditional seasonal exploitation for its defined community of users, and both day labourers and churchwardens are represented in the account of fines.\footnote{GA P18 IN 1/2, ‘Arlingham Parish Register’, p. 19.} Fines were levied for tethering prohibited beasts such as horses, or for grazing permitted animals at the wrong time of year. Grazing cattle on the warth after Holy Rood Day, the third of May, invited particular censure as this was an important day in the agricultural calendar for...
dairying regions in the south west, when cattle were taken to common pasture at the start of the commoning season. With inland fields rotated and sown with corn the spring warths became more crucial for communities reliant on sheep and cattle farming.

At Aust, the community took further steps to regulate warth grazing. They practiced a method of pasture management known as ‘stinting’. This is a measure of the number and type of beasts a particular piece of land could support, giving an indication of its ‘carrying capacity’. The inhabitants of Aust created a complex system of entitlement that assigned pasturage rights to freeholds, and were thus exercisable by tenants, who might themselves sublet the right again. Furthermore, the measure of one ‘beast’ was flexible, with a variety of animals being assigned different values. The quantification of pasture rights, and the transference between parties, and of animals, that it enabled shows the innovative capacities of flood-prone communal organization, and the ability of wealthier tenants to monopolise resources through leasing stints. Quantifying stints broke the connection between rights and land, enabling farmers to buy in beasts seasonally, or sublet their privileges, an indication of communities’ awareness of their riparian resources in wider agricultural contexts.

When common ownership of warths was compromised in the face of private improvements, communities closed ranks and sought to defend their pasture. At Awre in the 1610s, common warth land was expropriated by the local manorial lord and rented out privately to Richard Wytt. Having failed to regain the land in a suit in Chancery, the parishioners of Awre set about ensuring that Wytt paid local taxes on the land. Wytt’s labourers, a motley band of local sailors and alehouse keepers, claimed that they had improved the land from ‘barren waste ooze, dirt and water to dry and firm land fit to carry corn and grasse’. The parishioners of Awre disputed this, claiming to have always paid tithes on this

204 BRO AC/AS/21/5 ‘Aust an account of the Warth and Millhome’, fol. 1.
205 Ibid., fols 1–1v; BRO AC/AS/21/1 `Aust, A Coppie of a writinge that was Taken out of an old parrish Booke in The yeere 1650’, fols 1–1v.
‘firm land and good ground’. They went further, rounding on these marginal parishioners, claiming they had been paid, and that among them were excommunicates, a known murderer and supposed adulterer, and a drunkard. Here a community displayed a highly exclusive unity as it sought to protect a common riverside resource.

The common ownership of warth lands could result in negative consequences for neighbouring landholders. Common resources are distinct from open-access resources in that, in the words of Berkes and Farvar, ‘use rights for the resource are controlled by an identifiable group and are not privately owned or managed by governments; there exist rules concerning who may use the resource, who is excluded from the resource and how the resource should be used’. They are thus common, in a restrictive sense of the word, to those who form an agreed body of resource users, or in early modern parlance, ‘commoners’ – those who may use the common.

Whilst the collective organisation of common rights of pasture suited the seasonal, unstable nature of warth lands, communal ownership regimes did not always succeed in meeting flood defence obligations. Carl Dahlman argues that the problems that shared usage generated served to strengthen the ‘viability of… collective decision-making organization[s]’, the logic being that the community which organises communal grazing is the ‘natural’ body to appeal to for redress. Risks associated with warth lands complicate this view of a hermetically sealed common resource and its management. In 1626 communal grazing on warth land in the parish of Aust exacerbated the local flood hazard. Commoners had driven cattle to the warth through gaps and over tracks made in and on the sea wall. The flood risk this created did not affect the warth users as none them held land directly adjoining the warth. Rather than the risk-producing practices being regulated by the association of warth users, it took an external body, the county-wide Gloucestershire Commission of Sewers, to manage

211 Dahlman, The Open Field System and Beyond, p. 126.
flood risk. The Commission of Sewers ordered the Warth users to reconstruct a sea defence destroyed by their cattle within six weeks or face a two pound fine, the equivalent of over a fifth of a labourer’s annual earnings.\textsuperscript{212}

Whilst Dahlman’s point stands with regard to the closed system of the common field, when that common field is placed within the wider context of a shared landscape, the efficacy of communal management wanes. The resource – pasture ground on the warth – was indeed well communally managed. Its position in the wider landscape was however not. Warth land was expected to be liable to flooding, and thus those using the resource were not preoccupied with flood defence. Instead a larger, regional body was required to enforce flood defence maintenance that impacted on the wider community. Whilst commons were indeed self-sustaining in and of themselves, in the context of the wider region they required further regulation beyond that which they might impose upon themselves. This does not explicitly challenge Dahlman’s thesis, but merely illuminates the closed nature of communities of resource users in these circumstances.

Flood liable lands thus required adaptations that brought neighbours into close, ideally cooperative contact, as communal regulatory efforts sought to balance the needs of communities with what the environment could provide. This at times rather claustrophobic picture of wetland landscapes is illuminated in regulations set down by the Holland parishes of Spalding and Pinchbeck. Among the sixty-seven separate provisions in the shared set of fen bylaws were rules on entering the fen at night. Coming and going as one pleased was prohibited. Anybody wishing to make use of the fen at night had to be there by eight p.m. and stay until two a.m., and those wishing to go to the fen early in the morning were forbidden to enter before two a.m.\textsuperscript{213} This was to safeguard against ‘marauders prowling at irregular hours of the night’.\textsuperscript{214} Drayton, in his description of a fictional fenland in ‘The Man in the Moone’ (1619) captures the tensions inherent in the traditional customary fenland economy. After

\textsuperscript{212} GA D272/1/3, ‘General Minutes, 1615–1631, 1635’, fol. 76r; there are also examples of privately held land being subject to the same process of trampling and presentment in court, see ibid., fol. 64v.
\textsuperscript{214} Thirsk, ‘Field Systems of the East Midlands’, p. 252.
describing twelve separate species of waterfowl, each with their own ordained place in the fenland ecosystem (from the ‘jealous Swan, there swimming in his pride’, to the ‘long-neck’d Herne, there watching by the brimme’ and the ‘Curlew, scratching in the Oose and Ore’), Drayton describes a tense, chance meeting between a fisherman and a huntsman looking for birds:

And there a Fowler set his Lime and ginne,

Watching the Birds unto the same to winne;

Sees in a Boat a Fisher neere at hand,

Tugging his Net full laden to the Land,

Keepe off the Fowle, whereat the others bloud

Chaf’d; from the place where secretly he stood,

Makes signes, and closely beckneth him away,

Shaketh his hand, as threatening if he stay,

In the same stayned with such naturall grace,

That rage was lively pictured in his face:

Whilst the other eagerly that wrought,

Having his sence still settled on his draught

More than before, beats, plunges, hales the cord,

Nor but one looke the other can afford.\textsuperscript{215}

Here the differing needs of the fisherman and the fowler bring them into a silent, unresolvable confrontation. The fowler, waiting silently with his sticky limed rod and trap for his prey, requires absolute quiet to bring in his catch. The fisherman, heaving and lugging his heavily-laden net from a successful haul, cannot help but cause stir. They communicate in signals and

gesticulations, each not breaking from his task, utterly interconnected, whether they should care to be or not.

These particular wetland agricultural economies of flood liable estuarine zones were not however respected by all. As outlined at the start of the chapter, external opinions of flood-prone regions were that they were wasteful. In 1589, the Dutch hydraulic engineer Humphrey Bradley claimed that the Lincolnshire Fenland was inadequately drained due to local insistence on the maintenance of agricultural land on the immediate floodplain. Bradley claimed that

many water-works are undertaken and completed subject to ten times as great difficulty for the sake of some little plot of ground not (as to the thousandth part) of the size and benefit of this, and where it is needful to have recourse to means – dikes, machines, mills and uncountable costly necessities – because the lands lie beneath the low tide or a little above it: these marshes [the Fens] have all the advantages and helps that Nature can give, above those of Holland.216

The distinction between local and external parties was well recognised by contemporaries, and opposition to the reordering of agricultural regimes by external forces was an important aspect of fen and marshland identity. The inhabitants of drained areas of Lincolnshire, dubbed variously fen tigers or fen slodgers, penned numerous popular poems and ballads railing against the adventuring projectors who would drain their land. In Powtes Complaint the fenmen reinforce the notion that physical differences separate them from other Englishmen: ‘the great design, which they do now determine./ Will make our bodyes pine a prey to Crows and Vermine’. Draining the land would also drain their very bodies, and all because ‘Essex-calves want pasture.’217 Anti-Dutch sentiment pervaded the popular culture of the Fenland in the wake of drainage enterprises. In the drinking song ‘The draining of the Fennes’, the fenmen echoed John Donne’s characterisation of the ‘spongy, hydroptic Dutch’,

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216 Hills, Machines, Mills and Uncountable Costly Necessities, p. 6.
complaining that ‘The Dutchman hath a thirsty soul,/ Our Cellars are subject to his call:/ Let every man then lay hold on his boul/ ‘Tis pity the German-Sea should have all.’

The products of the drained fenland, chief among them the projectors’ colseed rape, were dismissed as ‘but Dutch commodities, and but trash and trumpery’, in comparison to the English meats and cheeses ‘which are the rich Oare of the Common-wealth.’

Communities disputed in more formal fora to safeguard their rights of common on these important shared resources. In 1596, one hundred tenants of Frampton upon Severn and Slimbridge brought a suit before the Court of Chancery against wealthy local yeomen who attempted to use their warth. The two villages had commoned on two hundred acres of warth for four hundred years at ‘all tymes and seasons of the yeare with all manner of Beasts at their pleasure’, but in the 1590s this was interrupted by interloping wealthy gentlemen. These gentlemen attempted to enforce a very liberal interpretation of the right of common, including themselves as non-resident landholders. The inhabitants of Frampton and Slimbridge sought to conserve a much stricter reading, one that required commoners to be either freeholders or copyholders and to be resident in either Frampton or Slimbridge, a reading the court supported.

Here we see the two villages cooperating horizontally, and pushing back vertically against pressure exerted from above. There were however historic horizontal tensions between the villages, as well as between the propertied and unpropertied within communities. In Frampton and Slimbridge we see what Matthias Range termed ‘communal assertiveness’ when studying North German flooding. Frampton and Slimbridge had been in dispute over warth that had been increasing and decreasing in size over the course of the sixteenth and

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221 Ibid., p. 28.

222 Matthias Range, ‘Communal Assertiveness and the Importance of Pastoral Care: Flooding and Parochial Reorganization on the German North Sea Coast in the Seventeenth Century’ German History, 30, 1 (March, 2012), pp. 22–44.
seventeenth centuries as fluctuations in the channel of the River Severn had shifted alluvial deposits across parish boundaries. A long and acrimonious series of disputes took place well into the eighteenth century, as both communities used manor, county and central courts to assert their perceived rights of common. Furthermore, both communities individually also sought to restrict access to the landless. In 1613 action was taken against parishioners who held no qualifying land yet used the common for sheep grazing. These were residents in the least secure forms of housing, like cottages (which came with no land), rack rents (which had no year-on-year fixed rent), and lodgings (beds in the houses of other poor parishioners).223 Here communities pushed both horizontally and vertically in an effort to define themselves as exclusive users of valuable riparian resources.

Therefore, in the context of floodplain agriculture, community and cooperation should also not be construed particularly harmoniously. The communal, cooperative management of social, economic and environmental concerns resulted in exclusion and disadvantage for outsiders. Such exclusivity has been identified in Holland Fen, where communities operated ‘hostile and even punitive’ social welfare institutions as a way of restricting access to resources to outsiders.224 Communities that controlled and regulated flood-liable lands were heavily invested in maintaining their own rights, and restricting them to others. Thus the ‘communal imperative’ of the floodplain was not a harmonious imperative. It was rather a spur to act collectively, and to mobilize resources *en masse* amongst an exclusive group of resource users.

Agricultural writers saw the communal nature of the floodplain as a potential impediment to improvement. Whilst generally agricultural improvers bemoaned the slow pace of changing attitudes towards the new husbandry, they more specifically took issue with the organisation of floodplain communities against improvement.225 John Worlidge saw the

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problem with improving floodplains as a problem of people: ‘ignorant and cross Neighbours’ who are ‘sordid and self-willed’ in their ‘Ill-husbandry and ignorance’ impeded development, and ‘the Ignorance of the Country men’ stymied water meadow installation.\textsuperscript{226} Likewise, Walter Blith complained about millers suing him for reducing flow speed in a river after he created a water meadow.\textsuperscript{227} John Shaw was advised to keep the locals on side when undertaking particularly disruptive waterworks. His employers urged him to be sure to keepe off a rupture, and if you see cause invyte the persons there to a dynner and be merry with them. Delay noe tyme but keepe the scent hott. Goe on as fast as you can, that we may put our afaires afoot.\textsuperscript{228}

Opposition was said to come through much less convivial associations between commoners. Blith complained that opposition towards drainage and floodplain improvement was because of the common voice of the fen people: ‘the report of the Country people was as one man’.\textsuperscript{229} Conspiratorial commoners, that ‘rude multitude, or a confused heady people’, Blith warned, would ‘weary the minds, and weaken the hands’ of those who sought to improve, with their ‘slothfull and sleathy slubbering’.\textsuperscript{230} Opposition to drainage in these writers’ works was because of the self-interest of pastoral farmers, who were ‘not desirous such publick Works should go forward, because perhaps they have a Cow, a Horse, or a few Sheep to feed as Commoners’.\textsuperscript{231} Managing the transition to an altered wetland economy was as much about managing people as it was about managing land. In his advice on foremen and bailiffs, Blith urged the would-be improver to prize and value a good Overseer, whose countenance and conversation is such with workmen, as will not onely awe and force them, but his wise and loving demeanor will compel them to their utmost faithfulness; a work in its geares will thrive exceedingly.\textsuperscript{232}

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\textsuperscript{226} Worlidge, \textit{Systema agriculturae}, pp. 16–17.
\textsuperscript{227} Blith, \textit{The English improver}, sig. A2v.
\textsuperscript{228} Bettey, ‘The development of water meadows’, p. 166.
\textsuperscript{229} Blith, \textit{The English improver improved}, p. 48; Thirsk, ‘Making a fresh start’, p. 27.
\textsuperscript{230} Blith, \textit{The English improver improved}, pp. 51–52.
\textsuperscript{231} Meager, \textit{The mystery of husbandry}, p. 46.
\textsuperscript{232} Blith, \textit{The English improver improved}, p. 64.
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When seeking to retain one’s investment, and not improve it, certain types of tenants were preferred over others. Heresbach urged his readers to only rent out flood liable land to substantial individuals, and ‘for the lives of the Tenaunt, his Wyfe, and his Chylde, paying a yeerely rent’. This would then encourage them to keep up repairs on flood banks and would protect the landowner’s investment in the land. It is best

where the ground is subject to the Sea or the River, or other daunger, that the Tenaunt be charged with the maintenaunce of it. And here be sure that you let it rather to one of habilitie, then to a an unthriftie man that is not able to beare it, whereby you may loose both your land & your rent.233

Schemes that looked to ‘improve’ the fens then necessarily rested on populating the drained landscape with ‘civilized and self-sufficient farmers’.234 Agricultural writers acknowledged, and looked to undermine, the socio-environmental metabolism of floodplains.

Conclusion

To return to John Smyth’s remarks on common warth lands introduced at the beginning, in the context of the prior analysis, they too can be taken as a statement of socio-environmental concerns. Smyth insisted on a ‘trew value’ of land that ‘idle’, ‘lazy’ inhabitants failed to realise and stressed that overpopulation and unfettered access to resources lead to societal breakdown and inefficient resource usage. In the hands of more ambitious men, with broader horizons, like Walter Blith, these ideas were scaled up to the level of the Commonwealth itself.235 The running of a state might be improved by the exploitation of flood liable lands, through both drainage and artificial ‘floating’. This logic of individual resource exploitation and the intensification of production contributing to a greater social good rested on a belief in the inherent productivity, but historical underdevelopment of floodplains, and on the inherent fecklessness and inability of wetland inhabitants to ‘improve’ landscapes. In promising exponentially increased financial returns on agricultural investments, investments that would

234 Slack, *The Invention of Improvement*, p. 60.
in turn shape and strengthen the Commonwealth on a large scale, and local communities on the small scale, champions of improvements like Blith and Smyth utilised an arithmetic social ecology that linked people, profits and the productivity of landscape.\footnote{These themes are discussed in much greater depth in chapter four.} Explicitly, they sought to maximise all three components, with an improvement of any one making an improvement in the others much more possible. However, as with all claims to universally beneficial growth, theirs also hid potential costs, many of which were realised. The drainage of the fens has been criticised as ‘England’s greatest ecological disaster’; the communities that were ‘improved’ were often tightly defined and excluded the landless and poor; and financial returns were not always as great, or as quickly forthcoming as anticipated.\footnote{Ian D. Rotherham, \textit{The Lost Fens: England’s Greatest Ecological Disaster} (London: The History Press, 2013)}

In the final analysis, comments like Carolyn Merchant’s that prior to the drainage of the fens, ‘[p]leasant tradition... maintained a balance between humans, animals, crops, and soils for hundreds of years’ appear somewhat misdirected.\footnote{Merchant, ‘Hydraulic Technologies and the Agricultural Transformation of the English Fens’, p. 168.} Floodplain economies were adapted to their specific ecological and hydrological regimes, yet the idea of ‘balance’ obscures more than it reveals. It obscures the twin traditions of inclusivity and exclusivity that shaped social practices on floodplains. To exploit the resources of landscapes that were at one risky and rewarding, either individual landholders had to continually invest in the maintenance of infrastructure to keep flooding within tolerable limits, or communities had to impose strict limits on what could be practiced on floodplains, and by who. Floodplain agricultural economies were then less about optimal and harmonious resource exploitation, and more about balancing access to resources with what those resources could yield. This resulted in communities using floods productively, but not always optimally. Williams recognised this in the Somerset Levels, where ‘most commoners were content with the state of the moors, and ... were willing to tolerate the possibility of their being inundated for five or six months, and
of the soil remaining waterlogged for many additional months, so long as they had some chance of de-pasturing their stock.\footnote{Williams, \textit{Somerset Levels}, p. 89.}

Flood-liable estuarine landscapes emerge from this survey as rewarding landscapes that repaid effective communal management. Communities used a variety of official administrative and legal fora to pursue collective interests, fora which were also open to individuals hoping to ‘improve’ agricultural land, and which were manipulable by those with economic and social power. Floodplain disputes show the actions and performances of communities that functioned \textit{exclusively}. Productive but flood-prone common land was coherently, and by no means tragically managed, as well-defined organisations of resource users regulated and controlled the behaviour of their members and restricted access to outsiders. In the wider context of the floodplain, these management strategies appear less successful. The collective exploitation of a resource did not lead to collective hazard mitigation strategies when those hazards affected outside interests: effective management on the field scale was not always effective on the scale of the wider floodplain. Furthermore, when managing and regulating potentially hazardous common resources, communities balanced social, economic and environmental concerns. What was socially and economically sustainable may not have been particularly environmentally sustainable, and likewise, the exclusion of poor and landless groups from commoning may have made sense economically and environmentally, but it was at the cost of those excluded. Thus the ‘balances’ achieved by floodplain communities must always be considered in local social, economic and environmental contexts, and here also in the context of broader perspectives of floodplains and watersheds.
2. Dangerous and disastrous flooding

Abstract

This chapter analyses some of the impacts of excessive flooding in early modern England. It considers floods from three angles: by looking at historically-ignored, everyday ‘nuisance’ flooding, by considering what factors influenced individuals’ experiences of larger-scale and higher impact events, and by understanding the financial and social costs of flood risk management. These three perspectives on flooding demonstrate the constant presence of floods in rural life, and the need for historians to fully contextualise and historicise flood events of all scales to understand their impacts. It argues that our current understanding of historical floods as high impact meteorological and climatological events is limiting, and offers a review of the (mainly scientific) literature on historical English floods. It argues that these studies lack historical context, and that recent literature on flooding and vulnerability in the North Sea Basin provides a model for more fully understanding the causes and effects of damaging flooding. Flood risk and flood damage are contextualised within everyday efforts to manage water in the landscape, to understand how damaging floods occurred as coping mechanisms failed. From this analysis it is shown that floods became disastrous not only through sheer physical force, but because of underlying vulnerabilities already present in the societies they affected. The often small-scale floods unearthed in administrative sources need to be understood as well as large-scale events if an accurate picture of flooding is to be gained. Such a view of flooding forces us to reconsider the category of disaster itself, as seemingly smaller, unstudied flood events are shown to have had more frequent ‘disastrous’ effects than those more well-known and physically damaging events. The chapter opens with a review of the existing literature on damaging flooding in Europe and England, and an outline of how the concept of socio-natural processes applies to the early modern floodplain. It then provides empirical evidence as to the nature of these socio-natural systems, and argues that such a perspective reveals many more historical floods than are currently accounted for. A third section addresses some of the ways in which early modern communities produced vulnerability to flooding.
Introduction

Despite growing contemporary concerns over damaging flooding, there is little historical literature on damaging flood events in England. When the subject has been broached, it has been from within the physical sciences, as an aid to understanding the relative severity and likelihood of contemporary flooding and flood risk. A small number of regional historical studies have been undertaken that address flooding in specific river catchments. However, many areas of the country remain completely unexplored, and no attempt has been made at a national synthesis. This is unlike neighbouring North Sea nations, for which data has been obtained. The gap in the English literature is twofold: both empirical and analytical. First, we lack accurate data on historical incidences of flooding in large parts of England. Historical climatologists Hubert Lamb and Knud Fryendahl compiled data on historical storms in the North Sea region from scientific secondary literature on the UK and other North Sea countries. Kieran Hickey has collected data on early modern storms in coastal Scotland, but neither of these sources help understand historical riverine flooding, or floods that occurred in other, particularly midland and south western parts of England. A ‘crowdsourced’ project on historical floods by the British Hydrological Survey has attempted to fill this historical gap.


3 The east coast is particularly well served by Lamb and Fryendahl, Hubert Lamb and Knud Fryendahl, Historic Storms of the North Sea, British Isles and Northwest Europe (Cambridge: Cambridge University Press, 1991), p. 3.


5 Frank M. Law, Andrew R. Black, Robert M. J. Scarrott, John B. Miller and Adrian C. Bayliss, ‘British Hydrological Society Chronology of British Hydrological Events Database’, Chronology of
The database requires contributors to include information from a ‘reliable source’, considered here to be ‘contemporary newspaper reports’, ‘published diaries’ and ‘published accounts of major events’. This is problematic, particularly for earlier periods, which the creators acknowledge.\(^6\) The database currently holds 6,272 records, ninety per cent of which relate to the period after 1750.\(^7\)

This lack of an empirical base from which to begin research has precipitated the second gap in England’s flood historiography: historical analyses of the effects of damaging floods. In the North Sea region, histories of flooding have moved beyond empirical exercises in climatic reconstruction, and have considered the specific social, cultural and economic organisations present in coastal societies. In Germany, research has focussed on flood mentalités and communal responses.\(^8\) In the Netherlands and Belgium there is a long scholarly tradition of research that analyses floods from political, cultural, economic and environmental perspectives. Scholars have studied the anthropogenic causes of Italian floods, as well as the impact of damaging flooding on local demographies and economies.\(^9\) Research on flooding in France has focussed on legal and political aspects of land tenure after damaging floods, and military uses of flooding.\(^10\) All of these studies have benefitted, at least in some small degree,

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\(^7\) Law et al, ‘Chronology of British Hydrological Events’.


from reliable flood incidence indices, which are lacking for England. They are all able to go beyond analyses of the changing prevalence of flooding, and in turn look at the causes of periods of flooding and their impact on early modern communities.

The scientific and empirically-based research into historical flooding that has taken place in the UK is largely motivated by contemporary desires to predict, mitigate and insure against flood risk. The histories this research produces often speak more to contemporary flood issues than they do about the history of flooding itself. Risk assessors use long-term, ‘historical’ analyses to calculate the likelihood of property flooding today. Floods are described in terms of their frequency, as, for example, ‘1 in 100 year’ or ‘1 in 500 year’ events, with political and insurance policy decisions then taken on a cost-benefit basis.\(^\text{11}\) The one million Londoners and their 300,000 properties that lie at risk of flooding from the tidal Thames are protected by a Thames Barrier designed to withstand floods up to a 1 in 1000 year event.\(^\text{12}\) These predictions rely on an understanding of past riparian, marine and climatic processes, and the scales they invoke extend beyond the earliest instrumental records of river levels or rainfall in the eighteenth century.\(^\text{13}\) Approaches to the past like these have led to the marginalisation of periods and sources that are not able to provide instrumental flood data. H. R. Potter commented that any source beyond the eighteenth century was of little use in constructing flood chronologies as ‘searching earlier records is likely to produce only some vague idea of the occurrence of earlier floods.’\(^\text{14}\) Only recently have geographers turned to the archival record in an attempt to predict return period over 100 years.\(^\text{15}\)

A second type of flood history avoids this presentist focus and embraces non-instrumental sources of data, yet remains problematically ahistorical. These ‘list’ histories

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present chronologies of different types of event, sometimes in an attempt to investigate long term patterns, at other times purely for the interest of the curious. They are related to some of the popular literature discussed in chapter three. Where Simon Goulart related ‘Admirable and memorable histories containing the wonders of our time’ in the early seventeenth century, later authors took a more systematic approach, and delineated phenomena by weather type.\footnote{Simon Goulart (trans. Edward Grimeston), \textit{Admirable and memorable histories containing the wonders of our time. Collected into French out of the best authors. By I. [sic] Goulart. And out of French into English. By Ed. Grimeston} (London, 1607).}

In 1749, Thomas Short’s \textit{A general chronological history of the air, weather, seasons, meteors, \\&c} was among the earliest of these extreme weather compilations. Short considered there to be too few of such histories to allow for the accurate prediction of future events, yet hoped his ‘might not be unservicable to Mankind in general’.\footnote{Thomas Short, \textit{A general chronological history of the air, weather, seasons, meteors, \\&c} in \textit{Sundry Places and different Times; more particularly for the Space of 250 Years. Together with some of their most Remarkable Effects on Animal (especially Human) Bodies and Vegetables} (2 vols, London: T. Longman, 1749), p. iii.} Floods included here range from Noah’s Flood, dated to the ‘19th Day of the second Month’ ‘1657 A.M.’, to more recent events.\footnote{Short, \textit{A general chronological history of the air}, p. 1. A.M. stands for ‘Anno Mundi’, the number of years since the creation of the Earth.} Historical interest remained high in the nineteenth century, as scholars like Josiah Priest, E.J. Lowe and Cornelius Walford produced compendia of events taken from a variety of historical printed and manuscript sources.\footnote{Josiah Priest, \textit{The Wonders of Nature and Providence, Displayed} : compiled from authentic sources, both ancient and modern, giving an account of various and strange phenomena existing in nature, of travels, adventures, singular providences, &c. (Albany, NY, [1826]); E.J. Lowe, \textit{Natural Phenomena and Chronology of the Seasons; being an account of remarkable frosts, droughts, thunderstorms, gales, floods earthquakes, etc. also diseases, cattle plagues, famines, etc., which have occurred in the British Isles since A.D. 220, chronologically arranged} (London: Bell and Daldy, 1870); Cornelius Walford, \textit{The Famines of the World: Past and Present}. (London: Edward Stanford, 1879).} These listed floods, alongside famines, plagues, earthquakes and droughts. Generally they display a ‘tendency to portray catastrophe as spectacle’, forgoing analysis for description and detail.\footnote{Geneviève Massard-Guilbaud, ‘Introduction: the Urban Catastrophe – Challenge to the social, economic, and cultural order of the city’ in Geneviève Massard-Guilbaud, Harold L. Platt, and Deiter Schott, \textit{Cities and Catastrophes/Villes et Catastrophes: Coping With Emergency in European History/Réactions face à l’urgence dans l’histoire européenne} (Frankfurt am Main: Peter Lang, 2002), pp. 9-42, p. 11.} In the early twentieth century, historians began reassessing this work, and attempted to find definitive and reliable sources for the events contained within them.\footnote{Hickey, ‘Documentary records of coastal storms’, p. 4.} Brooks and Glasspoole wrote their \textit{British Droughts}
and Floods in this vein of scholarship, citing literary and political sources alongside more recent hydrological data. The work of Lamb, Fryendahl and Hickey fits alongside this earlier scholarship as a more modern and ‘scientific’ version of the same endeavour. The majority of this research has been global and transnational (and in places supernatural) in scope, and has not produced the kind of national synthetic catalogue of flood events which have proved so useful for North Sea region scholars.

What all these ‘list’ studies lack is a consideration of the historical context of flood events. Floods are removed from the context of their occurrence and the constellation of relationships in which they occur, and are placed, one by one, amongst each other. These ‘list histories’ link extraordinary, damaging events in a narrative chain to produce a history of shock and abnormality. In the grandest narratives of this kind, scores of examples are brought together in impressionistic narratives that infer causation from an ‘accumulation of examples’ rather than the interrogation of causal mechanisms in attempts to link global climatic data to many disparate local events. Rather than being organised around the mundane interaction of humans and water, flood histories that are researched in this manner, are organised around common high levels of water discharge, property losses and casualties. E.P. Thompson argued for close attention to historical context, and this should be attended to in environmental as much as traditional social history. Thompson’s insistence that ‘each fact can be given meaning only within an ensemble of other meanings’ applies to floods too. Histories that divorce floods from their context, merely provide an ensemble of floods-as-facts. Floods in these histories are staccatoed and detached from the rhythms of social life, referred to each other only. Floods need to be seen as as much a part of landscape history and social history as of

22 C.E.P. Brooks and J. Glasspoole, British Floods and Droughts (London: Ernest Benn, 1928).
24 Paul Warde, ‘Global Crisis or Global Coincidence?’, Past & Present, 228 (2015), pp. 287-301, pp. 292-93, criticising Geoffrey Parker, Global Crisis: War, Climate Change and the General Crisis of the Seventeenth Century (New Haven: Yale University Press, 2013). Another recent work presents a long train of climatic and meteorological examples to argue that Charles I’s subjects believed ‘the times were out of joint’, politically and meteorologically, See David Cressy, Charles I and the People of England (Oxford: Oxford University Press, 2015), pp. 54-64.
climate history. Greg Bankoff has argued a similar point with regard to the use of history in contemporary disaster studies. Bankoff’s study of contemporary flood disasters in metropolitan Manila demonstrates how historical context is crucial to understanding how disasters are produced and why certain sections of society are more exposed than others. Without this historical focus ‘hazards remain random, disasters unaccountable and societies simply exposed’.  

Taking such a social and historical approach to floods then also requires us to take a historical and contextual approach to the ways in which societies defended against them. Adaptations and adjustments to environmental conditions have more than just technological effects; sea walls do more than just protect. Georgina Endfield has explored the socially uneven effects of societal adaptations to variable climatic phenomena in colonial Mexico. Aspects of the colonial political economy, including the monopolisation of landholding, the erosion of communal rights to land and depopulation rendered colonial society ‘differentially vulnerable to the impacts of climate events’. 27 Diana Liverman has shown that entitlement failures can increase vulnerability during droughts. Liverman showed that during the Mexican droughts of 1968-70, ‘to be vulnerable ... [was] to lack environmental, technological, economic, or political defenses’. 28 Like Endfield, Liverman relates land tenure arrangements to vulnerability, demonstrating that even where climatic and environmental factors were equal, groups who relied on communal and common land suffered most, often due to unequal access to water resources that came to be monopolised by larger landholders. 29 In both sixteenth-century Austria, and seventeenth-century Norwich, wealthier urban inhabitants escaped flood damage at the expense of their poorer riverside neighbours, whose situation and housing was less resilient to flooding. 30 Recent research into the pre-industrial era has

30 Christian Rohr, ‘Floods of the Upper Danube River and Its Tributaries and Their Impact on Urban Economies (c. 1350–1600): The Examples of the Towns of Krems/Stein and Wels (Austria),
supported these conclusions, finding that generally, property distribution within societies affected their capacity to cope with crises, with more ‘egalitarian’ societies more likely to be resilient.\(^31\) As these studies show, vulnerability to hazards is produced by the productive practices of a society in concert with its political economy, and shaped by a society’s attempts to mitigate against those hazards. They provide a theoretical justification for the study of flood defence regimes with a focus on the social cost of risk mitigation and the production of vulnerability.

Studies of European floods, as part of recent disaster literature, have shown similar results. Previous historiography was characterised by a desire to account more fully for the role of environmental factors in shaping historical processes, and stressed the agency of disasters in the past.\(^32\) This has extended to literature on flooding. In studying thirteenth-century English flood events, Mark Bailey sought to set the ‘crisis’ of the early fourteenth century outside of both a Marxist and a Malthusian framework, and to consider floods and climate as exogenous contributions to that crisis.\(^33\) The case for nature as a ‘historical protagonist in its own right’ has most recently been made by Bruce Campbell, whose focus has been on gradual and incremental environmental change, rather than on extreme events.\(^34\) However, the latest research on medieval and early modern flooding has instead stressed the importance of human agency, and its relationship with extreme events, to the history of economic change, collapsing the endogenous/exogenous distinction.

There is now much evidence for the influence of human factors on outcomes of natural processes.\(^35\) Gerrit Schenk has shown how over the long term, the cities of Strasbourg and

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\(^{32}\) Geoffrey Parker continues to pursue this line of argument in his recent work. Parker, *Global Crisis*.


\(^{35}\) Chiefly by Tim Soens in a number of articles and chapters. See Tim Soens, ‘Floods and money: funding drainage and flood control in coastal Flanders from the thirteenth to the sixteenth centuries’, *Continuity and Change*, 26, 3 (2011), pp. 333-365; Tim Soens, ‘The origins of the Western Scheldt.
Florence have been created and sustained in response to the changing costs and benefits of their situation on major rivers. Emanuela Guidoboni has disarticulated the history of climate from the history of flooding in the Po river basin to show how economic and demographic changes spurred hazard-inducing practices like deforestation and land reclamation, which were the prime causes of the Po’s flooding in the sixteenth century. Similarly, flooding on the Flemish coast has been recently understood as the consequence of human rather than climatic factors. Tim Soens uses Amartya Sen’s concept of entitlement to show that storm flooding in coastal Flanders came not as a result of overwhelming storms, but as a result of extreme failures in the legal rights to protection from storms that individuals could assert. This is shown in the context of a coastal society which obtained flood protection in an open market: when agricultural prices fell and flood protection could no longer be afforded, the ability of coastal inhabitants to defend themselves declined, resulting in flooding. This flooding was then as a result of an ‘entitlement failure’, rather than any ‘exogenous’ factor.

Together, through a social and economic approach to historical floods, these studies show the important human element in the occurrence and distribution of flood damage.

There is however an obvious gap in the (admittedly small) historiography that this chapter seeks to exploit: the history of damaging English floods in the early modern period. Environmental histories have a proclivity towards historical periodisation on a Braudellian scale. If, as structurally determinant aspects of social life, climate and landscape move and change like the deep currents of the ocean, by this logic we must study multiple centuries at a

Environmental transformation, storm surges and human agency in the Flemish coastal plain (1250-1600), in Thoen et al (eds), Landscapes or seascapes?, pp. 288-312; Tim Soens, ‘The social distribution of land and flood risk along the North Sea coast: Flanders, Holland and Romeny Marsh compared, c. 1200-1750’, in Bas van Bavel and Erik Thoen (eds), Rural societies and environments at risk: ecology, property rights and social organisation in fragile areas (Turnhout: Brepols, 2013), pp. 147-180. See also Piet van Cruyningen, ‘State, property rights and sustainability of drained areas along the North Sea coast, sixteenth-eighteenth centuries’, in van Bavel and Thoen (eds), Rural societies and environments at risk, pp. 181-208.


time to observe change. Despite this, recent research into flooding in the longue durée has analysed medieval and modern flooding, but skipped the early modern period. When historians have addressed the early modern period as part of longer chronologies, coverage has been slight, usually due to lack of available source material. This may well be because of the lack of empirical studies, noted above. A five-book series of essays on the history and archaeology of Romney Marsh is the exception to this rule, with the early modern period represented with at least one essay in each volume.

There is a well-established, and incrementally growing literature on medieval English floods. Studies by archaeologists Stephen Rippon, J.R.L. Allen and Michael Fulford have focussed on developments on coastal wetlands in southern England from the Romano-British period until the middle ages. James Galloway and Mark Bailey have both approached flooding in the medieval south east from an economic perspective. However, there is yet to

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40 Galloway (ed.), Tides and Floods contains studies of flooding up to the ‘close of the middle ages’, and from the eighteenth century, but nothing in between.
be any sustained focus on the early modern period from either of these perspectives. One reason for this may be archival. After the dissolution of the monasteries and the waning of the larger religious houses in the 1530s, large estates were broken up, and the documentation generated on their lands subsequently decentralised. The medieval literature is fuller, most often because archives are better consolidated, due to the more concentrated pattern of land and estate ownership. Research into early modern floods has different challenges as the evidence is scattered, requiring complex record linkage. The rise of commissions of sewers portioned off another part of the early modern flood archive away from large estates, with local records surviving more sporadically than religious institutions’ or central government’s. The Calendar of Patent Rolls and the records of Abbeys and Priories do not yield as convenient results in the early modern period, as administration fell into a greater number of more diverse hands. It is a great irony that one of the foundational texts for the historical study of flooding in England, William Dugdale’s *History of Imbanking and Draining*, was written in the mid-seventeenth century, but records relatively few early modern floods.\textsuperscript{45}

This chapter then aims to make three interventions in the historiography: first, it provides further analysis of flooding in the neglected early modern period. Second, moving away from viewing flooding as an exogenous phenomenon, it argues that we should take an expanded view of ‘historical floods’ to include events that are not necessarily produced by climatic phenomena. Third, it argues that the ‘disastrous’ impact of flooding requires a greater attention to the historical context in which floods occurred, arguing specifically that early modern vulnerability was a socially produced phenomenon.

**Hydro-social systems**

In order to fully understand the causes and effects of damaging flooding, we need to understand what routinely stopped floods from occurring. When floods are considered as ‘natural disasters’, their causes are simplified and envisioned as a result of climatic or geographical phenomena that are outside human control and influence. Yet, there is a good

\textsuperscript{45} William Dugdale, *The History of Imbanking and Drayning* (London, 1662). Its historical use and narrative strategies are discussed in more detail in chapter four.
deal of evidence to show that early modern floodplain inhabitants, in ways similar to but also different from their medieval forbears, exercised a significant amount of agency over their flood regimes. Understanding the degree of human influence over incidences and patterns of flooding is important in placing floods that were uncontrolled into their proper historical context.

Inhabited floodplain and estuarine environments in early modern England were ‘socio-natural sites’. The Austrian School of social ecology defines a socio-natural site as a ‘nexus between practices and arrangements’, where practices are ‘patterns of action’, based on routinized interactions with, and understandings of the world, and arrangements are the ‘material precipitates of practices... maintained by continued interventions’.46 Thus, in the case of early modern south Gloucestershire, the practices would be the continued scouring and cleansing of drainage ditches, viewing and rebuilding of sea walls, and the arrangements the infrastructure itself, along with the water that flows through it. Socio-natural sites are thus a blend of ‘natural’ and ‘artificial’ elements, and respond to both human and environmental changes.47 Understanding early modern rivers and floodplains in this manner may seem common sense and uncontroversial, yet it is by no means commonplace in contemporary environmental policy. Environmentally restorative programmes, particularly those under the European Union Water Framework Directive, use the pre-industrial period as a cipher for an undisturbed ‘natural’ period, and thus projects aim to ‘restore’ rivers to their pre-nineteenth century state.48 Such approaches neglect the ‘entanglements’ between rivers and human society and culture that stretch back beyond even the medieval and early modern periods, and the mutual interventions rivers and human society have made in each others’ histories.49

This pertains to flooding in that by acknowledging the hybrid nature of the early modern floodplain, we must then acknowledge the hybrid nature of early modern flooding. In these socio-natural systems, where water is managed, channels are altered, and flow is manipulated, human interventions can be as much a determining factor as environmental stimuli. Very bluntly, as Tim Soens puts it, when flooding happens ‘one cannot always blame nature’.  

The idea of a socio-natural drainage and flood defence system was understood in early modern England. In pastoral communities, where access to expanses of good quality grassland was of crucial importance, it was clear to communities how preventing flooding in one area might increase it in others. Fenlanders in seventeenth-century Cambridgeshire informed their court of sewers that there were embanked and unembanked fens, which were related to one another: ‘those which be saved from drowning with banckes doe make the other fennes (not imbanked) both to be the deeper groundes, and longer to remain soe otherways they would bee.’ The Privy Council lambasted the inhabitants of Carelton, Theddelthorpe and Saltfleetby (Lincolnshire) for not contributing to the scouring of common drains, and thereby ‘choosinge rather to drowne the townshippes of Gaiton and Witherne to the disinheritinge of the lords thereof and undooinge of the poore tennantes’. The difference between drainage and drowning was a choice people could make. The inhabitants of the Avon Levels in Gloucestershire understood their drainage network as operating in concert with other local needs. In Kingsweston, Gloucestershire, fields held by the watermiller were set aside for flood alleviation. Meadowland adjoining the ‘sea mills’ there on the River Trym was earmarked for improvement by its ambitious owner in the late seventeenth century, yet historically had been used ‘to be left open for the Sake of Water for other Grounds’.

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52 APC 31, 1600-01, pp. 46-7.
53 BRO 12964/1, ‘Volume of mounted letters and other papers 1679-1742: A list of improvements which might be carried out on the estate’, fol. 21r.
inhabitants of seven villages petitioned the Commission of Sewers to decide whether to pull down a water mill and deprive the area of a vital service, or keep it and flood nearby land. Commissioners were asked to decide ‘which of the two Inconveniences... ought to be preferred the want of Grist to make bread, or the casuall overflowing of the water’, one being a ‘certaine & unavoidable... detriment’, the other but a ‘contingent hazard’. In the 1690s, the parishioners of Crowland and Cowbit, Lincolnshire, obtained a settlement in the Spalding Court of Sewers to ensure that drainage investors did not prejudice Crowland fenland grazing by draining their own land. The Adventurers were accused of using locks and sluices on the River Welland, under pretence of improving navigation, to reduce downstream water levels, enabling them to pump water out of their downstream fens to keep them dry. They ‘frequently in flood times Shut up & Continued Shut the said Lock Sluces’, which ‘Extreamly Annoyed the severall Towns of Croyland & Cowbitt to their very Greate damage’.

These drainage and mitigation systems were also communally owned and managed in some cases. In the Severnside parish of Henbury, with its large estuarine boundary, church land was enfeoffed on the condition that it was rented to support, among other things, the upkeep of the parochial sea walls. The hamlet of Moreland, in the parish of North Petherton, Somerset, was charged with repairing five and a half kilometres of sea walls to defend against the tidal River Parrett. Even where resources were used in common, they were to be maintained by specific individuals. The parish of Aust specified that the responsibility to maintain its local drainage network or reens, ditches, gouts, pills and friths lay with the parish, but with sections divided among thirty-one specific parties, tracing the flow of water over 2km from ‘William Baker and John Barton’s Cottage’ down to the River Severn. The document recording this was drawn up in 1605 and repeatedly copied or updated for a century to reflect

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54 GA D272/1/10, ‘Gloucestershire Court of Sewers, General Minutes 1661-1663’, fol. 76.
55 LA PINCHBECK PAR/10/1 Vestry book, fol. 3.
58 BRO AC/AS/21/1, ‘Aust, A Coppie of a writinge that was Taken out of an old parrish Booke in The yeere 1650’, fols. 2v-4. The source records 344 perches, or 1,900 metres of drainage channels.
changes in local landholding.  

Similar records existed in other Severnside parishes, such as Arlingham, which kept and updated a ‘ditch book’ in the seventeenth and eighteenth centuries.

The ability to legitimately alter drainage networks was strictly reserved to those who would only act in the best interest of all those their actions might affect. This was recognised by Sewers jurors in July 1552, who ordered that the ‘clow’ (a flap that restricted tidal water) at Borne Eau ‘must be kept with ij locks: one key in the kepyng of one comissioner of sewar and ye other in the custody of ye balliffe of Crowland’, recognising longstanding disputes between the temporal and spiritual powers in the region, the inhabitants of Bourne and Spalding and the manorial lords (and previously Abbots) of Crowland. Crowland and its neighbours gained yet further rights to control drainage flow, when in response to the self-interested operation of lock sluices by drainage investors in the 1690s, commissioners of sewers ordered that ‘ye Government & ordereing of the said Lock Sluces be Left to the Care & management of the Dikereevenes of the said Townships of Spalding Cowbitt & Croyland’. It was however difficult for parochial dikereevenes to act in the interests of all parishioners at all times. In 1671, the inhabitants of Peakhill and Backgate in Cowbit parish complained that the dikereevenes took their money, yet failed to drain their land. The inhabitants’ want of a drain, ‘for many years past’ through neglect of the ‘auntient draine’ and with no suitable replacement provided, had left one hundred acres ‘greatly impoverisched & some of them little worth’. Flooding here was caused by neglect, and it was up to the dikereevenes to ‘finde & make another way’.

Oversight was therefore a crucial part of early modern flood defence regimes. Specific officers were empowered to watch over flood defences and regulate the use of drainage

59 BRO AC/AS/21/5, ‘An account of those persons who of right out to Cast and throw the ffast Ditch or Reen’, 1699, fols. 2-2v.
60 GA D18/409, ‘A True Copy of the Old Ditch Book’.
61 LA Spalding Sewers 473/2, ‘A Verdict at Stamford, 6 July 1552’, fol. 10; Holland Sewers, i, p. lxxxv. Clashes (sometimes highly violent) between the Abbots of Crowland and the people of South Holland over drainage are recorded by Pseudo-Ingulph in the Chronicle of Crowland for the years 1189 and 1483, see H.T. Riley, Ingulph’s chronicle of the abbey of Croyland: with the continuations by Peter of Blois and anonymous writers (London: Henry G. Bohn, 1854), pp. 275-277, pp. 493-494.
62 LA PINCHBECK PAR/10/1, ‘Vestry book’, fol. 3.
63 LA COWBIT PAR/18/3/1, ‘Order from the Court of Sewers [Cowbit, S. Holl.], 1671’. 106
features. In Cowbit dikereeves paid parishioners to keep watch on sea banks in October 1679. At Oldbury in Gloucestershire, long-running disputes over the watermills there led the Commissioners of Sewers to regulate the activities of the millers on several occasions. Surveyors were appointed to ‘take notice of the disorderly keeping of the said mills’ and were to be drawn from the neighbouring communities of Oldbury, Morton and Rockhampton to ensure water was only penned in the millpond up its ancient height. Later, the inhabitants of both villages were empowered to open the mill gates should ever the need require. These ordinances and the powers they granted to local officeholders demonstrate the dynamism and responsiveness of early modern flood prevention and alleviation schemes. Sluices and locks could be opened and closed in response to changing environmental stimuli, as people continuously engaged with the defence of their land from excess water.

Thus from this overview, we can see how flood defence and drainage systems were socio-natural systems. Keeping these systems operating at desired levels involved managing water and the infrastructure that carried it as much as it involved managing people. In a large, elaborated script on the reverse of his yearly accounts, William Winkley, dikereeve of Cowbit in 1679, sums up this dual role of water managers: ‘Almighty God Who is Master of all our time hath commited some moments thereof to the use and Management of Mankind’. Despite being appointed for the ‘repairing of Belsmore & Turpitts North Banke for the Defense of the Wapentake of Elloe’, Winkley saw his role as one that required the ‘Management of Mankind’ and the management of water.

Acknowledging the social nature of flood defence then requires us to acknowledge the social causes of flooding. To this end, the proceedings of local and regional court sessions provide hitherto untapped sources for the history of damaging floods. Those who have looked for evidence of historical flooding have contented themselves to look at sources that can broadly be conceived as landscape management records, contemporary reports and chronicles. Searches have thus been restricted to lay and ecclesiastical estate papers, government

64 LA COWBIT PAR/18/1a, ‘Dikereeves’ accounts, 1679’.
66 LA COWBIT PAR/18/1a-b, ‘Dikereeves’ accounts, 1679’.
documents, records of commissions of sewers (amongst the particularly diligent), as well as
ego documents like diaries and histories.67 Brodie Waddell has shown how manor courts
remained vibrant tools of local government in the seventeenth century (despite a
historiographical insistence that they were in decline) whose most frequent source of business
was local infrastructure, and within that issues pertaining to drainage and flooding.68
Waddell’s focus is primarily on Yorkshire, and the sustained manorial focus on drainage and
flood control he found is mirrored in Lancashire. Alison Maddock found that flooding and
water management came to increasingly occupy manorial courts on the Alt Level, Lancashire,
across the early modern period, with as many as two thirds of court orders relating to
watercourses.69 Similarly in the coastal Lincolnshire manor of Skidbrooke, orders were made
throughout the sixteenth century for all inhabitants to scour sewers and dikes due to the
surrounding land’s propensity to flood.70
Quarter Sessions provide us with information on many more floods than have been
recorded in the ‘chronological’ flood histories or historical-scientific studies. Focussing on
regional court material enables a more explicit social-historical approach to the history of
floods. Whilst Quarter Sessions do not provide a totally transparent window onto the world of
rural floods, the floods contained within them do not come from elite diaries, letters, state
papers or from pamphlet literature which are far from representative sources of information
on floods (see chapter 3). Given the level of communal involvement with the Quarter Sessions,
we can see damaging floods here that were defined as such by communities, or at least their
representatives. Cynthia Herrup has shown that presentments before Quarter Sessions were
not simply the complaints of rogue justices, and surveyors of the highways. Instead, these
local officials were fully integrated within the social fabric of local life, and the officers

October 1570’, in Christopher Sturman (ed.), Lincolnshire people and places: essays in memory of
Terence R. Leach (1937-1994) (Lincoln: Society for Lincolnshire History and Archaeology, 1996),
pp. 87-90.
68 Brodie Waddell, ‘Governing England through the manor courts, 1550–1850’, The Historical
69 Maddock, ‘Watercourse management and flood prevention’, p. 70
70 Simon Pawley, ‘Lincolnshire Coastal Villages and the Sea c. 1300 – c. 1600: Economy and
remained equal among equals. The floods that are presented as nuisances in Quarter Sessions thus emerge as those that mattered to the flooded.

Such an approach allows us to move away from histories of floods as dramatic events, and towards histories of flooding that are instead preoccupied with the routine management of water in the landscape. This connects floods back to their immediate local geographic and social contexts, and closely follows the conception of ‘disasters’ as constructed events, by first contextualizing the dramatic scales implicit in popular conceptions of ‘disasters’, and second by focussing on all negative impacts, rather than just high energy events. What these records reveal is a heretofore hidden history of flooding in England. Paying attention to the small-scale, the localised and the specific renders legible the acute local and personal impact of flood events of a variety of intensities. These floods are not necessarily those that scientific approaches to the historical record have been interested in as yet. Their studies have discussed flooding at the level of the river basin, the catchment and the coastline. Whilst these are all crucially important contexts, they obscure the intensely local flood events that litter the historical record. ‘Flood generating mechanisms’ are understood in the context of riverflow, and are limited to rainfall and snow, rather than taking a broader perspective of flooding as water out of place. The failure to maintain a ditch beside a highway, the gradual damage caused to a bridge by high freshes and unresilient construction, and the deliberate diverting of small watercourses – these are not blockbuster events chronicled by contemporaries, or selected for the scientific-historical record by geographers, engineers and hydrologists. They were however flood events that caused significant disruption in local communities. Even when floods were not disruptive to as dramatic a degree as destroying a bridge or drowning a person, they produced annoyance significant enough to warrant sustained legal action, from a variety

of actors, across a variety of fora. Considering flood impacts, and their variety of contributory factors, helps us retain a focus on the crucial human story of flooding.

At the most mundane and quotidian level, the failure to maintain ditches and drains caused nuisance flooding. The scale of private drain maintenance was significant. In late twentieth-century England and Wales there were some 128,000km of open drainage ditches, with likely many more in the early modern period in a more agricultural society. Complaints abounded in a variety of courts regarding failures to maintain ditches. Jurors in South Holland complained that the lords and commoners of lands between the River Glen and Brigg Dike ‘negligently & carelessly suffer the Rivers Loades & draynes... to be silted and landed up for want of scowringe, dikinge & Clensisge’, so that upon ‘evye downefall of waters, the said ffenns & grounds were surrounded’. Being dead was no excuse for failing to maintain watercourses. John Horton of Apslee, Buckinghamshire was presented posthumously at Quarter Sessions for ‘not scouring a certain river, so that the highways and meadows are flooded’. Landowners and tenants were expected to maintain drains and ditches on any land they held. Failure to maintain these field-scale drainage channels and watercourses was one of the most common causes of complaint at Quarter Sessions. Disputes could emerge as local environmental conditions and requirements shifted. In January 1606, a group of six neighbours were indicted at the North Riding Quarter Sessions for not keeping a bank and watercourse at Woodallfield in Thirsk ‘in proper repair... for the space of ten years and upwards’, to the great damage of their neighbours. Here an indictment was served to enforce a duty that had been allowed to be left unfulfilled after more than a decade of neglect.

Maintenance was the crucial word for landholders whose land incorporated drains. Alterations to the drainage network that changed where and how much water flowed could have significant downstream impacts. Frequent note is made of drainage offenders having

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75 LA Spalding Sewers/485/16, ‘Law, 1 September 1599’.
76 William Le Hardy (ed.), County of Buckingham, Calendar to the Sessions Records (7 vols, Aylesbury: Buckinghamshire County Council, 1933-80), i, p. 203.
77 J.C. Atkinson, Quarter Sessions Records (9 vols, London: North Riding Record Society, 1884), i, p. 27.
diverted watercourses. This was the case even with projects that sought to improve land by overflowing and drowning it, if not done with care. In 1618, an inhabitant of Kirkby Ravensworth was indicted for blocking up a ‘water-sewer in a meadow’, so that ‘the water is diverted from its ancient course and drowneth the groundes of one John Reynoldson’.

Just who the responsibility for such maintenance lay with was not always clear, and not always agreed upon. Disputes were particularly common when landlords were absent. Throughout the first half of the seventeenth century in Gloucestershire, the Lords of Oldbury and their tenants were at variance as to who was to repair the sea wall. Whilst the local court of sewers insisted the lord must pay, the Stafford family insisted they would and should not, resulting in their tenants being charged for the crucial works in their absence. Agreements in place in the Lincolnshire fenland over the status of land subjected to failed drainage schemes meant that drainage investors were required to maintain the vestiges of the drainage systems they had attempted to operate on areas of the fenland. They were however reluctant to do this, having received much more burden than profit for their costly endeavours. The Trustees for the drainage works at Deeping Fen failed in their duties in 1671, leading to ‘Breaches, Gooles & Overflowinges of water’ in land in Wykeham, Spalding. Henry Burrell, whose land was ‘thereby much damnifiyed by beinge Silted Wasted & drowned’ was awarded damages of £215 6s 8d from the Trustees by Commissioners of Sewers.

Where tenants had the financial ability to access higher forms of justice, proceedings could become more elaborate. In 1692 at Little Wakering, Essex, yeoman Peace Cage brought a Chancery suit against his landlord, Humphrey Hill, a wine cooper operating in London. Cage maintained that it was Hill’s responsibility to repair sea walls and tidal defences, and sought redress after Hill’s alleged failure had resulted in the destruction of his crops and livestock.

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80 eg. GA D272/1/3, ‘Gloucestershire Court of Sewers General Minutes, 1615-1631, 1635’, fol. 25r, 8 January 1618.


82 TNA C 6/393/57, ‘Cage v Hill, 1692’.
watercourses was also enforced where rights to resources were claimed. The operation of drainage systems relied on a combination of historical precedent, the enforcement of legal responsibilities and the physical condition of the network of channels itself. Should any of these criteria not be met, those responsible were liable to be prosecuted and neighbouring lands liable to flood.

The most common complaints among local courts are that negligence, malice or incompetence had caused highways to be flooded. They were suitably familiar in the popular imagination that John Cowell used an imagined highway flooding dispute as an example in his early seventeenth-century legal lexicon. Thomas Procter complained in 1610 of a lack of suitable gutters to drain rainwater from highways, and ‘that the ditches and common showers are not yearely clensed so as is needfull’ which was the ‘principal and chiefe cause of al bad and foule waies’. These complaints were reflected in cases before the Quarter Sessions. In less than two years between Easter 1661 and Epiphany 1663 in Surrey, thirty-three separate offences of flooding highways through individual negligence or design were presented before the Quarter Sessions. These offences ranged from the neglect of John Williams who ‘allowed his ditches lying against the highway... to be filled with mud ... for want of scouring ... so that they overflow the common highway there’ in April 1661, to Edward Rogers, gentleman of Chertsey, who ‘illegally ... obstructed ... a watercourse... to the grave damage ... of the king’s liege people ... in evil example ... and aginst [sic.] the peace’. Floods could be particularly damaging to parishes on major trade routes. The Warwickshire villages of Offchurch and Cubbington lay on the main droving road between the market towns of Birmingham and

83 Le Hardy (ed.), County of Buckingham, Calendar to the Sessions Records, iii, p. 138. ‘Scouring’, the material scoured from the river bed, could be productively used in agriculture. See chapter 2.
84 John Cowell, The interpreter: or Booke containing the signification of wvords wherein is set forth the true meaning of all, or the most part of such words and termes, as are mentioned in the lawe vvriters, or statutes of this victorious and renowned kingdome, requiring any exposition or interpretation, ... Collected by John Cowell ... (London, 1607), fol. VVV1v
85 Thomas Proctor, A profitable vvorke to this vvhole kingdome Concerning the mending of all high-ways as also for vvaters and iron workes. Written by Tho: Procter Esquire. (London, 1610), sig. A4v
87 Powell and Jenkinson (eds), Surrey Quarter Sessions Records, 1659-1661, i, p. 135; Powell and Jenkinson (eds), Surrey Quarter Sessions Records, ii, p. 219.
Southam, and struggled to keep up with repairs to the bridge over the River Leam that separated the two parishes. The Leam’s ‘great floods and inundation of waters’ destroyed the wooden bridge, and a new stone bridge was required to withstand the ‘violence of the waters’, yet parishioners could not afford this and sought relief through an appeal to the region in the quarterly assizes.\(^{88}\) These floods offended the ‘powerful fantasy of circulation’ that accompanied economic conceptions of rivers and transportation in early modern England.\(^{89}\) Whilst water might be a useful transport medium, when encountering highways it ought to circulate in a very different matter, from ‘ditch to ditch, gutter to gutter, or other conveyances of water to the common shoares’.\(^{90}\) Each highway ought to be clear and dry, linked to a network of ditches that should eventually connect to the sea.

The high level of prosecution of individuals who flooded highways is a good example of communally significant flood events. On one level, an obstructed highway negatively impacted many people, and thus we might expect highway floods to feature commonly as it was in the interest of the many to have them remedied. There was a further incentive to stop highway-related nuisances, as well as to attribute their causes to named individuals. The Highways Act of 1555 stated that parishes were to repair the highways that passed through them, unless it could be specifically shown to be the responsibility of a particular party. Likewise, if the highway remained unsatisfactory even after all these discrete parties had performed their individual duties, the parish was liable for repairs, to be carried out through unpopular statute labour.\(^{91}\) Attributing blame to an individual could then save communal labour. Thus the high incidence of highway flooding in Quarter Sessions shows us how these small-scale floods were important to the communities they affected, and offences were enthusiastically prosecuted.

Floods that obstructed travel could also have significant ramifications outside the productive and commercial lives of parishioners. In 1711 flooding of the river Thame, between the parishes of Ickford, Buckinghamshire and Great Milton, Oxfordshire disrupted the travel of the heavily pregnant Jane Gray, who had travelled from Ickford to Great Milton to visit her mother. She was delayed at her mother’s ‘by reason of a floud which then happened’, and was forced to take her lying-in period in Great Milton. On her return the inhabitants of Ickford refused to pay her poor relief for the child, and she was removed permanently to Great Milton, who were adjudged liable for her welfare by the Buckingham Quarter Sessions.92 In 1593 in Williton, Somerset, a miller was fined for ‘pounding his mill pond in winter in order to increase the soil of his ground’, which he then cast out onto the highway on Whitsunday, flooding the paths to Stogumber parish church and the Lydeard St Lawrence market.93 Throughout the later 1610s, the parishioners of Alne (North Riding of Yorkshire) had their usual ‘churchway’ disrupted by the negligence of the inhabitants of Tollerton, who had allowed the banks and dam of Alne mill to fall into disrepair.94 The inhabitants of Colnbrooke, Buckinghamshire, were left without spiritual instruction after their chapel became unusable and they were cut off from the neighbouring parish churches of Horton, Langley Marsh, and Stanwell, between a mile and two and a half miles away, because ‘the ways thither [were] frequently unpassable by reason of the floods’.95 These floods, of little climatological or meteorological significance, had acute significance for those they affected. They remind us that small floods causing localised disruption, impacted on local communities, disrupting their habitual behaviours, which in the cases of mobile poor women and church attendance had crucial financial, social and spiritual importance.

Sites that connected local areas to the wider national polity were singled out for particular attention. Where private drainage obligations adjoined common resources, the burden of upkeep came under closer scrutiny. In 1611, a stream draining a bog between the

92 Le Hardy (ed.), *Buckingham Sessions Records*, iii, pp. 264-5.
95 Le Hardy (ed.), *Buckingham Sessions Records*, vii, p. 150.
parishes of Brackenbergh and Newsome (Yorkshire) became impassable and the parishes were required to swiftly rectify this as the highway was ‘where his Majesties postes and packettes doe usually passe’. In Heworth, just outside the City of York, a woman was indicted in 1614 for ‘not having for diverse yeares caused to be scoured, clensed, and made current and passable one ancient water-sewer’. Her neglect caused Heworth Moor to become ‘so drowned and overrun with water’ that neither beast nor man could cross it, with the floods also ‘a hinderance to the laudable practise of Artillerie’. Justices’ invocations of activities necessary for national cohesion and security could of course be rhetorical. The Surrey Justices emphasised the severity of every flood-causing nuisance with a reminder that such behaviour was a ‘grave nuisance’ to ‘the king’s liege people... passing by’ and was ‘in evil example... and against the peace’.

Whilst most of the man-made flooding discussed here has affected farmland and infrastructure, prosecutions at Quarter Sessions also include the flooding of homes and gardens. In Buckinghamshire in the 1680s, the offences of ‘diverting a watercourse so that it overflowed into the house of Thomas Ludgate’, and ‘turning a watercourse into the garden of Samuel Hartly’ were prosecuted. Flooding homes was certainly an inconvenience, but it could also be much more dangerous, as it brought water towards the areas and people it was meant to avoid. Reverend Robert Pead, rector of Horton, Buckinghamshire, was indicted in 1691 for ‘for diverting a watercourse between his yard gate and the house of Solomon Stephens, whereby the infant child of the said Stephens was drowned’.

Of course not all floods were caused by the malice or neglect of people. As archaeologist Matt Edgeworth reminds us, ‘flowing water is more than just a passive resource under human control, but an actant in its own right.’ Increased or unexpected volumes of water could have damaging effects on early modern communities. Sewers juries were keen to

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96 Atkinson (ed.), *Quarter Sessions Records*, i, p. 219.
97 Atkinson (ed.), *Quarter Sessions Records*, ii, p. 46.
98 Powell and Jenkinson (eds), *Surrey Quarter Sessions Records, passim*, e.g., i, p. 133.
99 Le Hardy (ed.), *Buckingham Sessions Records*, i, p. 55, p. 203.
100 Le Hardy (ed.), *Buckingham Sessions Records*, i, p. 400.
record this in their verdicts when particularly bad weather had caused flooding. In 1624 South Holland jurors viewed the flood defences of Sutton St. Mary and returned that essential weather gates ‘could not be done at that time by reason of the sodaine Rise of the waters’, rather than by the neglect of their neighbours.\textsuperscript{102} Likewise in Gloucestershire, there are scattered references to wet weather delaying maintenance work and hindering the upkeep of sea walls.\textsuperscript{103} The following section deals with the impacts of these higher-intensity events in Gloucestershire.

On 30 January 1607 southwest England and Wales experienced some of the worst flooding in British history. A huge surge of salt and freshwater forced its way up the Bristol Channel and lower River Severn, crushing and overtopping flood defences in Devon, Somerset, Gloucestershire, Glamorgan and Monmouthshire. Contemporaries speculated that thousands of farm animals and hundreds of people lost their lives.\textsuperscript{104} The surge inundated 570 kilometres of coastline, leaving floods of between 1.5 metres and 3.5 metres in parts of England, reaching as far inland as the foot of Glastonbury Tor (22 kilometres).\textsuperscript{105} Some authors have claimed the 1607 Severn flood to have been caused by a tsunami. Based on geological evidence, some nearby and nearly contemporary earthquakes, and the close reading of selected passages of a small number of primary sources, Simon Haslett and Edward Bryant claimed that the 1607 flood was caused by a submarine earthquake off the south coast of Ireland.\textsuperscript{106}

However, evidence not considered by Haslett and Bryant suggests that the flood was actually caused by a storm tide. Storm tides occur when high winds accompany high tides, increasing the level and velocity of approaching waves. They are rare, as they require the

\textsuperscript{102} LA Spalding Sewers 476/4, ‘Verdicts for Elloe presented at Spalding, 16 September 1624’, fol. 2.
\textsuperscript{103} GA D272/1/10, ‘General Minutes, 1661-1663’, fol. 90v; D272/1/11, ‘General Minutes, 1663-1665’, fols. 2v-3.
coincidence of two independent phenomena. Hurricane Sandy is a recent example of such a storm tide, striking the eastern seaboard of the United States during a high tide on 29 October 2012. Haslett and Bryant discount weather as a contributing factor in 1607, claiming that winds of 128.7kmh would be required to force a surge this high, and that bad weather only affected North Devon, because the flood hit ‘elsewhere in the Bristol Channel apparently under fair weather’. Despite these claims, accounts of bad weather accompany descriptions of the flood in both Almondsbury (near Bristol) and Arlingham (30km further up the Severn). In Almondsbury, ‘a myghty strong western wynd’ accompanied the flood, and in Arlingham the waters were so high ‘by reason of the south west winde’. Flooding in the middle and inner estuary was exacerbated by winds in 1628, 1629, 1703 and 1737.

In 1607, strong winds were accompanied by a large tidal bore. The Severn bore is a monthly wave of water that runs up against the current of the Severn, reaching as far as Tewkesbury in some instances and is the second largest such wave in the world. When exactly a large bore occurs in relation to full and new moons is determined by a nine-year cycle that dictates whether the largest bore follows a full moon or a new moon. Tracing this cycle back to 1607 shows that in January that year the largest bore followed the full moon. NASA calculations show that there was a full moon on 27 January 1607, three days before the flood. This was acknowledged by contemporaries. The Almondsbury account notes that the

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111 Haslett and Bryant dismiss a coincidence with the Severn Bore as they disregard the cyclical nature of the Severn bore’s precise timing, claiming bores to always precede high tide. Haslett and Bryant, ‘The AD 1607 coastal flood’, p. 88.


flood occurred on ‘the full pryme day and hyghest tyde after the change of the moone’.\textsuperscript{114} The flood also struck at high tide at Bristol.\textsuperscript{115} There was historical precedent for lunar-influenced flooding. The famous 1483 flood of the Severn (‘The Duke of Buckingham’s Water’ which kept a ‘greate power of wilde Weleshmen’ from meeting Buckingham’s insurrectionary forces at Gloucester) was said to have occurred when ‘the greatest Wind... at Bristoll that ever was Seen’ coincided with a lunar eclipse.\textsuperscript{116} Later floods were also associated with changes in the moon. The Henbury account records that ‘The Moon changed ye Same Morning’ as the 1703 flood.\textsuperscript{117} Observations recorded in a Gloucestershire copy of \textit{Swallow’s Almanack} note that flooding accompanied ‘changes’ in the moon: in 1688 floods occurred ‘y’ second day after y\textsuperscript{e} Chang of y\textsuperscript{e} moone’, in 1689 four days after the change of the moon, and on the same day as the change of the moon in 1703.\textsuperscript{118} The contemporary lunar observations correlate exactly with NASA calculations of new moon dates for the days specified.\textsuperscript{119} With the moon at or near its perigee during these floods, tides are much larger, and when coupled with strong weather, can cause significant coastal flooding. Such storm tides have been acknowledged as the primary causes of significant flooding in the estuaries of the early modern Netherlands.\textsuperscript{120} This is the most likely explanation for the 1607 event.

A Gloucestershire tsunami is however an exciting thought. Tsunamis are associated with areas of intense seismic activity and give rise to enormous destruction, as evidenced by devastation in Indonesia in 2004 and Japan in 2011. The closest most English people get to

\textsuperscript{114} Green, ‘An Almondsbury Parish Register’, p. 177.
\textsuperscript{115} BRO InfoBox/5/6 ‘Extracts from a Bristol MS & Calendar regarding pestilence, fires, floods etc., 1257-1719. Supplied to Mr W Edwards’, p. 3.
\textsuperscript{117} BRO FCP.Hen/R/1/c/4 c1708-1710:m1695-1711, ‘St. Mary, Henbury’, p. 25.
\textsuperscript{118} GA D866/E1, ‘Swallow’s Almanack for 1687 with ‘N.Thurston’ on the front and ‘John Thurston’ inside cover’, fols. 42-42v.
tsunamis at home is consumed through their televisions, on news reports, or in Hollywood blockbuster disaster films, such as Brad Peyton’s *San Andreas* (2015). However, by making 1607 a much more exotic event than it actually was, we arguably increase historical distance between ourselves and those who experienced it (having no comparable experience through which to interpret it) and between the flood and the contemporary social context. Flooded Severnsiders are painted as helpless, unknowing and unprepared, if the flood is seen as resulting from an as-then unpredictable geophysical event. Seen as a storm tide, 1607 becomes much more closely related to other contemporary events. It is then an event that communities attempted to account for, but did not do so sufficiently. Set in the context of legalistic wranglings over flood defence repair, the continued use of low-lying and intertidal land, and the need for the constant maintenance of a drainage system based on personal legal obligation rather than immanent need, the 1607 flood reflects aspects of Mike Davis’ concept of the ‘dialectic of ordinary disaster’. This states that the ways in which societies organise around risk, and reorganise after disaster actually contributes to the formation of the next disaster, through maladaptation, short-sightedness and intensive use of natural resources.  

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Contextualising the 1607 event allows us to understand more about its causes, and the impacts it had. Figure 2.1 shows the amount of expenditure on flood defences from 1583-1704. The primary variable, labour cost, has been controlled for, and all totals are adjusted to use a labour cost equivalent to that of the first year, 1583. This graph estimates the total expenditure on flood defences, making up for the gaps in the records where information on cost is missing. A mean order cost has been calculated by dividing the yearly total by the number of costed orders. This mean has then been multiplied by the total number of yearly orders. The projection is therefore an estimation, and cannot control for unknown repair costs that deviate significantly from the mean. This graph only uses data in cases where more than 45% of orders were costed in the documents. Nine years’ totals have been excluded in this manner.122

The data show that flooding caused significant financial burdens on Severnside inhabitants. The figures include the costs of court-enforced running repairs. They do not show

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122 The excluded years are 1588, 1590, 1599, 1608, 1609, 1611, 1618, 1626, and 1656.
the cost of any works done that did not require the compulsion of the court. The scale of the costs after bad floods is significant. There were 11,820 flood-liable acres in the Upper and Lower Levels, as calculated by the Commissioners of Sewers. The damage caused to flood defences by the 1607 event was worth the equivalent of a taxation of a shilling per acre to repair. After the 1703 flood, it would have taken a levy of 5s 7d per acre to repair the defences.

The burden of flood defence repair was not shared so equally however, and large disparities occurred in who had to pay what. One of the most striking features of the graph is that the much feted 1607 ‘disaster’ certainly seems disastrous in the context of the period 1600-1650, yet is only the sixth most costly in the period under study. Repairs ordered in 1607 are far out measured by those in 1661, and instead of being anomalously high, would fit in with those of the later 1680s and 1690s. By far the most damaging event in terms of flood infrastructure damaged is the 1703 flood.

Years of abnormally high expenditure correlate with known flood years. Flooding and bad weather are referred to in other local sources, and the records of Commissions of Sewers in the years 1583, 1607, 1688 and 1703.\textsuperscript{123} The abnormal expenditure in 1661 is not accompanied by a similar clear indication of recent flooding. The unfortunate loss of the volume of sewers minutes covering 1659-60 may account for this. The minutes for 1661 make reference to the poor situation of the defences of the levels around Oldbury, which had broken down due to a combination of tidal power and ineffective management. Commissioners noted the

eminent danger they [the inhabitants of Oldbury] are in of drowning and being surrounded by the overflowing of the River of Seavorne which hath (as we are enformed) already broken in and overflowed in some certaine places of the sea walls by the defaults aforesaid for want of reparacons and the Countrey and inhabitants there neere adjacent.\textsuperscript{124}

\textsuperscript{123} 1583: GA D272/1/1, ‘General Minutes 1583-1606’, p. 5; 1607: Green, ‘An Almondsbury Parish Register’, p. 177; 1688: GA D866/E1, ‘Swallow’s Almanack for 1687 with ’N.Thurston’ on the front and ’John Thurston’ inside cover’, fols. 42-42v; 1703: Defoe (ed. Hamlyn), \textit{The Storm}.

\textsuperscript{124} GA D272/1/10, ‘General Minutes 1661-1663’, fol. 22.
Given the longstanding dispute between the lords and tenants of Oldbury (see ‘Vulnerability’, below), flood risk in 1661 would appear to be as a result of both defence failures and estuarine processes. Neither the periods of high expenditure nor the documented floods that correlate with most of them appear in a recent historical flood chronology, incorporating the River Severn. Here, using different sources to those used in historical hydrology, we find different floods and some of their financial impact on those affected. Historical studies that focus on riverflow and discharge can thus skew the historical record, omitting events that were locally significant, and at times considerably financially burdensome.

Population statistics can give us further indication of the impact of damaging flooding. Whilst population reconstruction remains a fraught and difficult task, particularly when comparing data from different sources, some general patterns can be seen if consistent approaches are taken to sources from different areas. Goose and Hinde provide a series of multipliers which can be used to operationalise various data sources for population reconstruction. Their suggestions have been heeded here. Using data from the 1608 military survey of Gloucestershire, alongside Alicia Percival’s collation of a variety of other surveys, it is possible to reconstruct population changes in four Severnside parishes (which have been selected on the basis of the availability of workable population figures). The results for Slimbridge, Hill, Rockhampton and Oldbury are presented in Figure 2.2. Every parish but Rockhampton experienced population decrease in the period immediately after the flood. This is likely because Rockhampton lay inland from Hill, Oldbury, and Slimbridge, and was thus less severely affected by the flooding of 1607. Entries in the Rockhampton parish register suggest that the parish itself was not affected by serious estuarine flooding, as note is made of the situation from Bristol to Gloucester, yet no reference is made to the situation in the parish

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Rockhampton had drainage issues, and contributed to the Sewers rate, yet was less affected by the 1607 storm tide than neighbouring parishes.

We can gain a more impressionistic sense of mortality after flooding from parish registers. Few parishes record the cause of death of those they buried, yet where they do, this can be revealing. At Oldbury on Severn, the parish register records that ‘Margaret Adye drowned by the breaking in of ye sea’ in 1607. Hers is the only death recorded in the parish as having been caused directly by the flood. In the large southern parish of Henbury, there are eleven recorded flood-related deaths after the 1607 flood, ten of which were women. The disproportionate incidence of female mortality may be attributable to the fact that the flood occurred early in the morning, being brought on by a storm at around three o’clock, when milking (a female-dominated task) would have taken place in these predominantly pasture-oriented parishes. Incidental mentions of deaths in the register of St. Peter’s, Barnstaple, indicate that occupational factors may have contributed to mortality here. James Froste, ‘a toaker’, or tucker, and two of his children died when ‘his howse fell downe upon them & killed them’. ‘Tucking’, part of the cloth-making process involving compressing cloth by beating it, would have taken place in a fulling mill, necessarily adjacent to a water source, and thus close to potential flood risk. Only three Henbury burials came within a week of the flood (two of these being women who ‘drownde in theire beddes’), with the rest occurring between nine and thirty-five days after the flood. Given that in most regular burials occurred within three days of a death in this period, these increased time spans indicate a comparatively long

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127 GA P271 IN 1/1, ‘Rockhampton Parish Registers, Baptisms, marriages and burials, 1563-1740’, p. 11, cf. p. 38. This is discussed in greater depth in chapter 3.
128 GA P237 IN 1/1, ‘Oldbury-on-Severn Parish Registers, Baptisms, marriages and burials, 1538-1645’.
131 Quoted in Haslett and Bryant, ‘The AD 1607 coastal flood’, p. 84.
133 Quotation at BRO FCP.Hen/R/1/(a)3, ‘Anglican parish of St Mary the Virgin’s Parish, Henbury, Bristol, General register, 1582-1650’, frame 39.
time taken to find and prepare bodies for burial.\textsuperscript{134} There is also the distinct possibility that many were never recovered, and are thus not recorded as burials.

\begin{figure}[h]
\centering
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\end{figure}

An analysis of burials in affected parishes reveals no pattern of crisis mortality in periods after very large floods. Figure 2.3 shows the number of burials in four parishes affected by flooding in 1688, after the second most expensive year in the century in terms of flood defence repairs, coming after the 22 March storm-tide flood. The data shows that there was no increase in the number of burials following this large flood event in three of the parishes, and only slight increases in two. That burial rates dropped in nine of the fifteen periods studied suggests that rather than causing crisis mortality, floods may have contributed to outward migration in the immediate aftermath.

Floods also impacted on the marriage patterns of affected communities. In the Gloucestershire parish of Henbury in 1607 Sunday services were interrupted after the flood of 30 January, leading to three marriages missing consecutive banns readings. Each received a dispensation from the ordinary to account for this. Marriages that had been contracted before the flood still took place, with ceremonies on 29 and 31 January, yet only one more marriage took place until October that year, save the three with dispensations in February.¹³⁵

**Vulnerability**

Assessing the impact of disaster on a population and settlement scale is useful, but can obscure the individual experience of disasters. Recent research into disasters has emphasised the role that structural vulnerability plays in the creation of disasters. Vulnerability is a condition that is produced by societal factors that increases susceptibility to the negative effects of events. Moving away from the analysis of structural failures, such as dike failures or river breaches, from the mid-twentieth century onwards disaster research turned to look at the conditions that

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cause disasters to have damaging effects on people. In the context of flooding, Gilbert White pioneered research on societal adjustments to floods. Floods for White should not be seen as ‘watery marauders which do no good, and against which society wages a bitter battle’. Instead it was ‘human encroachment’ on flood plains that put people in harm’s way, leading him to the blunt conclusion that whilst floods may be ‘acts of God, flood losses are largely acts of man’. The human element in vulnerability is even more prominent in recent disaster studies. Greg Bankoff has shown how social systems ‘generate unequal exposure to risk’ which is ‘largely a function of the power relations... in society’. As Kathleen Tierney has recently summarised, ‘vulnerability represents the potential for experiencing damage and loss’ which may be conditioned by a wide range of environmental, socio-economic, political or cultural factors.

The compound nature of vulnerability in relation to flooding is clear from the experience of impoverished flood victims. The continual requirement to protect land from being flooded could take its toll when people were incapacitated. The Lancashire Justices petitioned the Privy Council on behalf of the recently widowed Jane Singleton in 1641. Whilst quarantined due to a plague that he eventually died from, Singleton’s husband’s land in Cabus had flooded and his finances had been embezzled and Singleton was left with nothing. Likewise sheer bad timing exacerbated the impact of floods on those who were already vulnerable. William Payne of Hunspill, Somerset, was allowed extraordinary relief from the treasurer of the county hospitals after his house was burned down, and his property subsequently flooded in 1607.

The rise of absenteeism in tenurial relations, and the consequent change in stewardship practices increased tenants’ vulnerability to flooding. Soens has noted the proclivity of medieval Flemish absentee landowners to default on flood defence payments,

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137 Bankoff, ‘Constructing Vulnerability’, p. 96.
139 Lancashire Archives QSB/1/253/38 ‘Cabus: recommendation of Justices to Ministers’, 1641.
140 Bates (ed.), Quarter Sessions Records for the County of Somerset, i, p. 13.
leading to inadequately protected farmland. Whilst this put their land and tenants at risk, it was, in some respects, a rational economic choice. Protecting old land that came with still relatively secure early medieval tenurial rights and manorial responsibilities became less and less attractive to large landowners who increasingly sought to consolidate large areas of flat, reclaimed land into large commercial farms. By leaving old land to flood, whilst reclaiming new land from the sea that could be designed to fit the requirements of large-scale commercial agriculture, landlords could make a net-gain.\footnote{Soens, ‘Floods and money’, p. 350.} This could happen in medieval Flanders because of the droit d’abandon (‘right to abandon’), which stated that land left to flooding from the sea could be forcibly purchased by anyone willing to re-embank and safeguard the land.\footnote{Ibid., p. 349.} No such rule existed in early modern England. Responsibility for flood defence maintenance rested with those who derived benefit from the land – freeholders, and copyholders, and lords in the case of the demesne and when land was held via leasehold.

On the Severn Estuary, tenants experienced increased vulnerability due to disputes with absentee lords over repairs to their flood defences. The longest-running and most acrimonious dispute between a lord and their tenants came at Oldbury-on-Severn. In Oldbury approximately 233 people and 1,247 acres were considered at risk of flooding from the Severn.\footnote{All acreages are taken from GA D272/1/3, ‘General Minutes, 1615-1631, 1635’; and all population statistics are calculated from the number of men aged twenty to sixty recorded in John Smyth, Men and Armour for Gloucestershire, 1608 (Stroud: Alan Sutton, 1980), using Goose and Hinde’s suggestion of a multiplier of 100/57 x 2 for military surveys, uprated to 100/55 x 2 to reflect Smith’s practice of including men up to the age of ‘about twenty’, rather than Goose and Hinde’s suggestion that all men above the age of 16 were included. Goose and Hinde, ‘Estimating local population sizes at fixed points in time: part II’, pp. 74-88.} It was a comparably poor parish, the villagers there paying the third, second and seventh lowest subsidy payments out of all the twenty-three Severnside parishes in the subsidies of 1592, 1595 and 1608.\footnote{The data is taken from Select Rolls 83 and 84 from Bristol and Gloucestershire Archaeological Society, ‘Gloucestershire Lay Subsidies 1581-1595 (Southwest Division): Select Rolls 82-85 (1581-1595)’ <http://www.bgas.org.uk/publications/subsidy/index.html> (accessed 3 March 2015), and GA D4431/4/2, ‘Subsidy roll for the hundreds of Berkeley, Grumbolds Ash, Langley and Swinshead, Thornbury, Henbury... 5 James I’}. In the later eighteenth century, Samuel Rudder described the area as ‘very unhealthy, from stagnated water lying on some of the lands’.\footnote{Samuel Rudder, A New History of Gloucestershire (London, 1779), p. 755.} The tenants and their acres here were at the mercy of their manorial lords as much as they were from the
floods and tides of the Severn. Repeated disputes over who was to repair sea walls hindered
the Commission of Sewers’ attempts to ensure they were maintained. From as early as 1618,
Commissioners found sea defences dangerously neglected, noting in January that year that
‘the Sea Walls of Oldbury are so decayed & broken, that yf they be not speedely Amended,
there is like to ensue great daniger to the whole Country there abouts, Subject to the outflowing
of the Sea waters’.\textsuperscript{146} The lords of the manor refused to pay for repairs to the sea walls for
which customary and ex-customary land was liable, as did the land’s tenants. As both lord and
tenant refused to pay, despite the insistence of witnesses brought before the Court of Sewers,
the flood risk grew.\textsuperscript{147} In November 1653, the Commissioners stated that further neglect of the
disputed walls meant ‘the Country adjacent is in eminent danger to bee drowned or
surrounded by the overfloweinge of the River of Seavorne.’\textsuperscript{148} Into the 1660s the
Commissioners again found the land around Oldbury in ‘danger of drowneing and surrounding
the County by the rage and overflowing of the River of Seavorne if not speedily prevented’\textsuperscript{149}
Still further into the 1680s upon viewing the walls at Oldbury in 1686, they were found to be
‘dilacerated and broken dowe... and are of extraordinary need to be amended and repaired
for the safety of the Country’.\textsuperscript{150} Finally in 1687 agreement was reached between lord, tenant,
and new freehold landowners, but at the cost of ‘soe Longe a tyme that great Damage hath
hereto fore beeene thereby occasioned’.\textsuperscript{151} Here, disputes over the legal responsibility to pay
for flood defences put some of the poorest inhabitants of the level at risk. Financially unable
to pay to defend land themselves, and subject to a succession of manorial lords who vigorously
protested having to pay for repairs for seven decades, these tenants suffered repeated floods
due to a combination of unfavourable geographical position and a failure in flood protection
 provision.

\textsuperscript{146} GA D272/1/3, ‘General Minutes, 1615-1631, 1635’, fol. 27r.
\textsuperscript{147} Ibid., fol. 25v-26; GA D272/1/8, ‘Gloucestershire Court of Sewers, General Minutes 1654-1656’,
\textsuperscript{148} GA D272/1/7, ‘Gloucestershire Court of Sewers, General Minutes 1653-1654’, fol. 11.
\textsuperscript{149} GA D272/1/10, ‘Gloucestershire Court of Sewers, General Minutes 1661-1663’, fol. 19.
\textsuperscript{150} GA D272/1/14, ‘Gloucestershire Commission of Sewers: General Minutes, 1685-88’, unpaginated,
meeting of 12 November 1686.
\textsuperscript{151} GA D272/1/14, ‘Gloucestershire Commission of Sewers: General Minutes, 1685-88’, unpaginated,
meeting of 20 April 1687.
Even where relations between landlords and tenants were more serene, the distribution of the responsibility to provide flood defences remained unequal, and potentially risk-producing. Such an uneven distribution of the responsibility to maintain flood defences can be seen on the lower part of the Severn Level in the later seventeenth century. An account of the sea wall from Shepperdine to Littleton on Severn from 1676 details the responsibility each landholder had to maintain the sea wall.\(^\text{152}\) The account lists the amount of land each person held that abutted the sea wall, and the consequent length of sea wall they were to repair. This length was equal to the amount of sea wall that their land bounded. Some areas of land had a disproportionate amount of sea wall to repair, if, for example, their land ran in a narrow strip alongside it, compared to a holding with a smaller sea frontage but comparatively larger total area. Differences in liability for repair could be striking. Thomas Webb held seventy four acres (30 hectares) that connected to the sea wall, yet was responsible for the maintenance of only six perches (33 metres), whereas just three acres (1.2 hectares) of customary land held by Robert Alpas and others was liable for fifty-eight perches (318 metres). Distinctions between ‘customary’, ‘leaseland’ and ‘freeland’ in the table also allows some analysis of liability by tenure type. The document shows that customary tenants were responsible for on average one perch more of sea wall than freeholders. The average length of sea wall that customary tenants were to make was seven and a quarter perches (42.5 metres) per acre, yet for freeholders, it was just six and a quarter (34.3 metres). The one leasehold tenancy made the fewest, at just three and three quarter perches (20.6 metres) per acre. This accords with the advice given by Conrad Heresbach, who urged landlords to rent out land which required defending to tenants for a period of lives, and to ensure they paid for defence maintenance.\(^\text{153}\) Those with the most secure forms of tenure were burdened with the greatest responsibility for flood defences.

The uneven distribution of flood defence repairs can also be seen from orders given at the Courts of Sewers. Orders typically required landholders to repair a drain or flood defence before a certain date or face a fine. This fine was typically twice the stated estimated

\(^\text{152}\) GA D272/10/3, ‘The sea wall from Sheperdine to Littleton on Severn, 1676, naming owners and occupiers, type of tenancy and distance each had to repair 1676 (1781 copy)’.
\(^\text{153}\) See chapter 1, note 231.
repair cost. Using this information, we can calculate the burden these repair orders placed on individual landholders. This can be achieved by comparing the number of days allowed for the repair of a flood defence with the time taken to obtain the full cost of the repair through unskilled wage labour.\footnote{Wage rates are taken from Global Price and Income History Group, ‘English prices and wages, 1209-1914’, International Institute of Social History <http://www.iisg.nl/hpw/data.php> (accessed 29 October 2014).} Multiplying the number of days allowed by six sevenths gives a more accurate picture, allowing for a labour-free Sunday per week. Thus we can see what percentage of the time available landholders were required to work on their flood defences. In many cases this is greater than fifty percent of the time, and for a small, but significant proportion of the Severnside community, over one hundred percent.

Figure 2.4 Time taken to repair flood defences and drains as a percentage of total time allowed, 1583-1631. Sources: GA D272/1/1, D272/1/2, D272/1/3.

Large figures, particularly those over fifty per cent suggests the integration of local landholders into markets for flood defence labour. The officers of the court, operating \textit{in situ}, surrounded by local jurors, witnesses, complainants and defendants, would be unable to order their neighbours to do impossible tasks, and undertake work they did not have time for. The heavy burden placed on individuals is thus indicative of a flood defence market, in which labour was routinely co-opted or bought-in. As Soens has shown for the continental North Sea area, where flood defence is provisioned through a market system based on the ability to pay
rather than the requirements of inhabitants, entitlement failures can exacerbate flood risk. Here again we see how a system operates not around the requirements of flood risk mitigation, but around a private property regime defined by rights and obligations. Provisioning flood defence in this way created an extra-environmental variable for flood vulnerability: the ability to pay.

The ‘dike culture’ that emerged around large scale structural flood defences influenced how communities experienced extraordinary flood events. In his study of the Thames Embankment, Dale Porter showed how large-scale public works projects, as technological solutions, reveal environmentally and culturally defined problems. Rather than being driven by some extra-historical ‘inherent logic’, technology occurs ‘within a matrix of changing social and environmental conditions’. Contemporary disaster studies have shown how strategies that emphasise flood ‘defence’ and ‘control’ ‘tend to cause more problems than they solve’. The historical experience of Austrian riverine communities has demonstrated that increased structural flood defence measures, such as dikes, heightened river banks and sea walls also produce increased risk. Historical fluvial morphology has shown that, broadly, in the history of the Danube floodplain, the maxim ‘the higher the dike, the bigger the flood’, rings true. By curtailing the natural floodplain of a river, heightened dikes back up an increased volume of water, which, when it overtops these dikes, floods the surrounding area with a greater force and volume than it would have otherwise. In addition to the increased physical risks brought about by structural flood defences, research into floods in modern Canada, Germany, Italy and the UK has shown that people living and working with structural flood defences have greater faith in their effectiveness, leading to a false sense of security.

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In coastal Northern Germany, dikes such as these helped buttress an entire cosmology and political philosophy. For the Küstenbevölkerung of Schleswig-Holstein, sea dikes provided a physical delimitation not only of sea and land, but provided a symbolic psychological boundary between the Binnenwelt and the Butenwelt, the inner- and outer-worlds. Thus, psychologically, sea walls could buttress conceptions of safety that could themselves become dangerous when they differed markedly from the reality of the effectiveness of defences.

These aspects of dike culture were present on early modern English floodplains. On both sides of the lower Severn Estuary, faith and pride in flood defences was manifested in monumental inscriptions to their makers. In the Gloucestershire parish of Fretherne, the eighteenth-century parish register records the commemorative marker on the bulwark against the sea there. Recorded on the flyleaf is a note of ‘The Inscription upon ye flat stone at ye End of ye Hock-Cribb’:

This Bulward was founded June 13th 1738 & finished December 30th 1739 at ye sole Expence of the right honourable Augustus Earl of Berkeley.

Celebrating the benefactor of a flood defence was nothing new on the Severn Estuary. Sir John Stradling, neo-Latin scholar, Justice of the Peace, Sherriff and later Member of Parliament for Glamorgan, published a series of Epigrams, some about his family’s native country, in 1607. Included amongst these is a tribute to his cousin, Sir Edward Stradling, on the construction of a sea wall against the Severn at Aberthaw. He his cousin’s ‘funding, genius, art’ and ‘Herculean labour’, claiming the sea wall is more worthy of praise than the Pyramids or Babylon, whose ‘wonders tend only to show’. The sea wall was a great work, as it held back

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161 For the commemorative aspects of parish registers, see chapter three.

162 GA P152 IN 1/2, ‘Register of baptisms, marriages and burials for the parish of Fretherne, 1720-1795’, flyleaf.

Neptune himself: ‘What greater than to prescribe laws for Neptune, and impose new limits on
his floods?’ Sir Edward had driven back this foe, and replaced salt with soil, sea with seed,
fish with fields and sheep ‘a-straying’.164

The pride taken in the construction of monumental sea walls could however turn to
hubris. Responding to the flood of January 1607, Sir John lamented the destruction of Sir
Edward’s previously lauded sea wall. On his return to Aberthaw, Sir John found ‘what I had
left firm to be rent asunder, and that all my hope and sleepless effort, your expenses, and the
farmers’ crops were ruined’. Prior faith in technology was replaced with a belief that Neptune
and his ‘outlaw waters’ were not ‘not bound by law’, and that ‘no fixed rule applies in fluid
matters’.165 Perceptions of safety then also impacted on the vulnerability of floodplain
inhabitants. Whilst a misplaced faith in structural flood defences has usually been attributed
to developments in nineteenth-century structural flood defences, and ‘high modernist’
approaches to engineering the earth, here social, rather than scientific cultural capital
influenced the perception of flood safety.166

**Conclusion**

This chapter has argued that floods must always be considered from within their local social
and economic contexts, as well as their climatic and meteorological ones. Early modern floods
were part of a wider spectrum of environmental (and hydrologic) processes that were more
embedded in the routines of daily life in coastal and estuarine communities than they were
elsewhere and than they are today. This close relationship to water both mitigated and
exacerbated the effects of flooding in local communities. Floods were mitigated by the

164 John Stradling (trans. Dana F. Sutton), ‘Epigram 62. To Sir Edward Stradling, Knight, on the
seawall at Aberthaw, constructed at his own expense for the containment of the Severn, a Herculean
labor completed within five months. 1606’, in Dana F. Sutton (trans. ed.), John Stradling’s
Epigrammatum Libri Quatuor (1607): A Hypertext Critical Edition (Online: University of
165 John Stradling (trans. Dana F. Sutton), ‘Epigram 98. To Sir Edward Stradling, Knight, about the
incredible flooding of the Severn the day after the poet began his journey to London, in which that
seawall recently built at Aberthaw was overcome and wholly torn apart. January 20, 1606’, in Sutton
166 Rohr, ‘Floods of the Upper Danube River’, p. 144; James C. Scott, Seeing Like a State: How
Certain Schemes to Improve the Human Condition Have Failed (New Haven, CT: Yale University
adaptations to wet and low environments outlined in the previous chapter. More intricate systems of water management could then both keep local communities safe from flooding, as well as cause damaging flooding when they failed. Taking these water management failures into account, the historical record of flooding becomes greatly expanded. We see floods not just as largely meteorological events with natural causes, but as socio-natural phenomena that are in some ways inherent in systems of routine water management.

This chapter has shown how the negotiated relationship between water and human society was not one that communities could totally control. By understanding floods as ‘socio-natural’ occurrences, their human and non-human causes have been explored. Adaptations to hydrology, particularly to tides, runoff, and drainage, frequently exposed communities to risks that, if not sufficiently attended to, were realised as negative flood experiences, or uncommonly, as ‘disasters’. These may not have been particularly damaging in terms of mortality, but placed large financial burdens on communities that were themselves damaged by extreme events. ‘Bad floods’ were a concern in almost all regions in England: micro-geographical, climatic, political and social conditions generated them, and they were realised everywhere people attempted or depended on the conveyance of water from one place to another. Furthermore, the ways in which flood defence was organised increased the vulnerability of those unable to finance their repairs. Where flood defence was a personal responsibility, those without ability were subject to increased flood risk, and poorer drainage, as evidenced here at Oldbury (Gloucestershire). As with other crises in the early modern period, the damage caused by floods was the culmination of a number of underlying processes, some of which were environmental, and others of which were socio-economic.
3. Understanding flooding

Abstract
Flooding was a recurrent part of rural life in early modern England. Explanations of the historical understanding of floods have traditionally relied on religious and providential arguments made in popular printed literature. In this chapter, popular printed accounts of flooding are brought together with under-exploited archival sources to provide a different description of perceptions of flooding in early modern England. Local manuscript accounts of flood events are found in the marginal notes inserted into local registers of baptisms, marriages and burials. Institutional records of Commissions of Sewers provide another perspective on floods, as community-staffed bureaucracies recorded and attempted to manage the damage caused by overflowing rivers and raging seas. Brought together, these local narratives provide a new and different view of the experience of flooding. Paying close attention to the ways in which flood events were narrativised, this chapter explores the customary, religious, personal, and productive narrative frames invoked by contemporaries. By using underappreciated and traditional archival sources in new ways, this chapter provides a rereading of early modern attitudes towards geographical phenomena previously derived from print.

Introduction
After the damaging effects of the 1607 Bristol Channel floods, local authors and curious metropolitan correspondents began to write down and make sense of what had happened. The anonymous author of a contemporary printed account of the flood took it as a sign from God that England was sinning, and that worse was to come should the nation not repent. He hoped his fellow countrymen would prepare for some tempest in one kinde or another, as terrible unto us as that hath been to them knowing that these prodigious overflowinges of the waters, howsoever natural causes, as Gods instruments doe claim their partes in them yet they proceed from the Lords own direction, who by his punishing of others with them, doth threaten grievous calamities, even against our vice, unles I say speedy repentance, &
amendment doe avert his feareful wrath & judgemen from us.¹

In the inundated Severnside parish of Henbury, the curate John Owen and the two churchwardens William Mattock and the illiterate Thomas Smith came together to write their own description of this flood. Together, using the Old Style dating convention, they noted in their parish register that, ‘The salt marshe was overflowed wth the sea water on tuesdaye [the] 20th of January. 1606. [with] greate losse of all sort Cattell beside men women & Children.’²

On 12 February a group of local lords, knights and worthies gathered in the untroubled north Gloucestershire village of Weston-sub-Edge. They sought powers to direct the recovery operation, and wrote to the Privy Council describing the ‘greate hurt and damage by the rage and overfloweing of the sea ... within this county of Gloucesstershire’ and the ‘greate losse and damage likelie to ensue if speedy remedy be not provided to prevent the danger’.³

This chapter attempts to account for the contrast between these understandings of the same flood. Written by a London scrivener and by flood survivors, and in a public, commercial genre, a more insular community resource, and a political appeal respectively, these accounts of one of Britain’s largest floods present us with contrasting views of a damaging natural event, and invite us to consider why the same event was seemingly understood so differently. Reading these dissonant texts together, this chapter offers an insight into the hydrographic cultures of early modern England through flood narratives, and uses the narrativisation of damaging natural events as a way to understand early modern human-environment relationships.⁴

With every flood comes an explanation, and in public discussions of events, often exhortation and blame. In early modern England, ballads, broadsides and chapbooks reported

¹ Anon., 1607 Lamentable newes out of Monmouthshire in VVales Contayning, the wonderfull and most fearefull accidents of the great ouerflowing of waters in the saide countye, drowning infinite numbers of cattell of all kinds, as sheepe, oxen, kine and horses, with others: together with the losse of many men, women and children, and the subuersion of xxvi parishes in January last 1607. (London, 1607), sig. B4v.
² Bristol Record Office [hereafter BRO] FCP.Hen/R/1/(a)3, ‘Anglican parish of St Mary the Virgin’s Parish, Henbury, Bristol, General register, 1582-1650’, frame 39. The authors use the ‘Old Style’ Julian Calendar dating convention, in which the new year began on 25 March, not 1 January. The Julian Calendar, used in England until 1752, was also ten days behind the currently-used Gregorian Calendar.
³ GA D272/1/1, ‘Gloucestershire Court of Sewers: General Minutes 1583-1606’, p. 21.
⁴ Simon Schama introduced the phrase ‘hydrographic culture’ in The Embarrassment of Riches: An Interpretation of Dutch Culture in the Golden Age (London: Fontana, 1987), p. 44.
floods in a public, saleable genre, whilst local flood victims wrote their own narratives in a variety of manuscripts. These survive in personal correspondence and, importantly for this chapter, as marginal notes in parish registers and testimony given to local flood control organisations – texts with communal audiences. In what follows, explanations and understandings of flooding in public media are contrasted with local accounts, to understand how early modern English people experienced flooding, and what they took floods to mean. Particular attention is paid to the ways in which local communities wrote their relationships to rivers, relationships that were rooted in local custom, family, history, work, and political economy.

Culture has a crucial role to play in the construction of floods and their histories. Historians now recognise that ‘disasters’ occur as two ‘separate trajectories’ collide; hazards, such as rivers or tides, meet with the socio-cultural complex of a human population. The specific impacts of damaging events can and have been examined by historians. Understanding the financial cost of losses, the number of human and animal casualties or the number of houses destroyed is a useful way of understanding how disaster affected communities and individuals, and how disasters were experienced. Yet such approaches can obscure what these events meant to those who experienced them. By studying not only what happened, but how people narrated and related to what happened, we can put experience into context, and begin to understand why floods were experienced in the manner they were. Studying how communities and individuals wrote about and remembered their experience of flooding is thus important to a social and cultural history of flooding, as well as an environmental history that seeks to fully historicize human-environment relationships.

Narratives and artifactual memorialisations of disasters are part of communal coping strategies and shape processes of remembrance and recovery. As ‘embedded’ cultural objects that do more than report events, they are ‘significant social actions’ that ‘cannot avoid a covert

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exercise of power’. The narrativisation of an event mediates how it is experienced and represented, as stories and experiences become mutually reinforcing parts of an ‘intertextual chain of associations’. Narratives ‘presuppose meaning’, produce it through explanation and description, and, particularly in the wake of trauma, attempt to ‘create meaning from non-meaning’. Cultural geographer Yi-Fu Tuan has argued that integrating the experience of shock into one’s ‘homeplace’ is an important element in reappropriating ‘landscapes of fear’. Thus the historically contingent stories societies tell to explain shocking events serve as ‘shelters built in the mind’ against ‘chaos’ and ‘doubt’. The creation and performance of stories that seek to explain ‘what went wrong in the interaction between culture and nature’ then play a key role in societies’ attempts to cope with such shocks.

By reading stories told about flooding in this way, we can understand them as parts of communities’ experiences and interpretations of the natural environment. McEwan and Werrity have linked the experience and narrativisation of flooding. Investigating the 1829 ‘Muckle Spate’ flood in Highland Scotland, they show that in a society with variable literacy rates, high religiosity and no centralised flood defence provision, interpretations of flooding invoked divine explanations more than where flood defence is provided by the state. Grattan and Brayshay have also shown how interpretive frameworks could act as markers of social distinction. In responding to the volcanic eruption of the Laki fissure in Iceland in 1783, elite observers of European weather conditions shunned religious interpretations as a means of

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10 Howard Marchitello, *Narrative and meaning in early modern England: Browne’s skull and other histories*, (Cambridge: Cambridge University Press, 1997), pp. 4-5; Bill Luckin has advocated a similar approach, referring to the ‘social, psychological and symbolic system or systems within which accidents occur and through which meaning is bestowed upon them’, see Luckin, ‘Accidents, disasters and cities’, *Urban History*, 20 (1993), pp. 177-90, p. 182.
distancing themselves from the majority of the population. The frames within which floods are narrativised are then important both for understanding the communal experience of natural phenomena, and the direction of coping strategies.

**Providential pamphlets**

There is an abundance of early modern literature narrating and explaining natural and riverine phenomena. These popular ballads, pamphlets and broadsides are a rich and significant source base. Titles such as *A Miracle of Miracles*, and *God’s Warning to His People of England*, make the providential tone of this literature unmistakable. After the ‘Great Storm’ of 1703 Daniel Defoe observed that ‘in public calamities, every Circumstance is a Sermon, and every thing we see a Preacher’, a maxim borne out in the vast majority of early modern literature on flooding. Here floods were always righteous. In 1570 floods were sent to punish ‘covetous Lease-mongers’ and ‘greedy grasiers’; in 1607 floods punished both ‘our transgressions’, and the misplaced faith in ‘natural’, rather than spiritual explanations of recent extreme weather.

One author admonished the ‘Busie Philosopher, or more pretended Astrologer’ who instead of looking to the heavens for causes of flooding, spent his time ‘Groping into the Secrets of Nature’. Floods were to be heeded as admonishments from a wrathful God, with readers...

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15 T.I., *A miracle, of miracles As fearefull as euer was seene or heard of in the memorie of man. Which lately happened at Dichtet in Sommersetshire, and sent by diuers credible witnesses to be published in London. Also a prophesie reveal’d by a poore countrey maide, who being dead the first of October last, 1613. 24. houres, reuiued againe, and lay fiue dayes weeping, and continued prophesying of strange euents to come, and so died the 5. day following. Witnessed by M. Nicholas Faber, parson of the towne, and diuers worthy gentlemen of the same countrey. 1613, withall, Lincolnshire teares. For a great deluge, in which fiue villages were lamentab"ly drovvned this present month. (London, 1614); William Jones, *Gods vvarning to his people of England By the great ouer-flowing of the vwater or floudes lately hapned in South-wales and many other places. Wherein is described the great losses, and wonderfull damages, that hapned thereby: by the drowning of many townes and villages, to the vter vndooing of many thousandes of people. (London, 1607).*


17 Thomas Knell, *A declaration of such tempestious, and outragious fluddes, as hath been in diuers places of England. 1570 (London, 1571), sig. A3v; Anon., *Miracle vpon miracle. Or A true relation of the great floods which happened in Coventry, in Lynne, and other places, on the 16. and 17. dayes of Aprill last past, in this present yeare of our Lord God, 1607 (London, 1607) p. 4 [sic. 6].

18 Anon., *Sad news from the countrey, or, A true and full relation of the late wonderful floods in divers parts of England with the great destruction of several persons, the carrying away of houses, mills, cattel &c. ... : which may serve as a preparative to the approaching general fast, that all may be affected with, and humble their souls under the hands of Providence (London, 1674), p. 3.*
warned ‘Amend least a more feareful punishment, and a longer whip of correction draw blood of us’. When sinners escaped a disaster, authors looked to the Book of Luke: ‘except ye repent, ye shall all likewise perish.’ The afflicted in these situations were not the only sinners, rather they were punished as an example so that ‘thou maist thy selfe in time looke unto thine own courses, least he proceed in the same or some more grievous maner with thee’. This was a discourse of admonitory warnings common to literature on other disasters.

The vitality, diversity and ‘elasticity’ of providential interpretations of calamities made disasters a ‘perennial homiletic theme’. One highly providentialist narrative of the 1607 floods, A True Report of Certain Wonderful Overflowings of Waters, enjoyed transnational appeal, and was republished in both French and Dutch.

Even when the causes of floods were described in practical, physical terms, their ultimate cause was said to come from Heaven. Floods were ‘second order’ events. A flood might be caused by earthly processes, but these were set in motion by God, echoing the jointly physical and metaphysical interpretations of the 1634 North German ‘Buchardi Flood’. The immediate cause of flooding in 1683 was ‘immoderate Rains accompanied with Prodigious Thunders and Lightnings’, but this was no meteorological event – the weather was ‘plainly demonstrating that when the Almighty pleases, he can Command the Elements to fight against us.’ Thus even ‘natural’ explanations of events existed within a providential system in which

26 Anon., A true relation of the many sad and lamentable accidents that have happened by the fearfull floods occasioned by the late unusual rains in several counties of England, for several days past by which many people, cattle, houses, barnes, much corn and the like have been destroyed, together with
the Almighty was always prima causa. In works of physico-theology, particularly in the later-seventeenth century, God was seen to operate through a ‘plastic nature’ – ‘a regular and predictable instrument’ entirely subordinate to Him.27 In these explanations, providence functioned as a frame wide enough to encompass discussions of human and natural agency, as these were understood to have ultimately come from God.

Providentialism provided a spur to reformative action that showed contrition to an angry and righteous God. In the period 1541 to 1866, the English and Scottish Churches ordered at least 103 separate fasts, thanksgivings and prayers in response to natural events, and ninety-four for all special occasions between 1535 and 1643.28 The Books of Common Prayer (1552 and 1559) included standard local prayers that ‘allowed dioceses and parishes to respond to local problems’, including bad weather, war and disease.29 Much like the pamphlet literature, some of the national prayers were copied, refreshed and updated from one crisis to the next.30 National days of repentance, ‘for the better humiliation of the people’, were adopted with the greatest enthusiasm by the godly Long Parliament during the Civil Wars, yet were more popular with political hierarchy than with often reluctant parishioners.31 When national prayers were sent out, they were accompanied by ‘information about, and official interpretations of, the event for which parishes were ordered to pray’, which preachers based sermons around.32 As a type of ‘disaster response’, these centrally-authorised prayers exemplify Geneviève Massard-Guilbaud’s observation that authorities make political choices in selecting which events to remember, and how.33 These placatory prayers formed part of a

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31 Christopher Durston, ‘For the better humiliation of the people’: public days of fasting and thanksgiving during the English revolution’, The Seventeenth Century, 7 (1992), pp. 129-49, p. 133, p. 141.
33 Geneviève Massard-Guilbaud, ‘Introduction: the Urban Catastrophe – Challenge to the social, economic, and cultural order of the city’ in Geneviève Massard-Guilbaud, Harold L. Platt, and Deiter
providentially-inflected coping strategy with which both central authorities and communities used to mend spiritual rifts that, in this schema, had precipitated damaging events.

This overt providentialism has preoccupied historians writing about the understandings of natural phenomena in early modern England. Ole Peter Grell emphasises the providential interpretation and understanding of natural disasters which were sent by God to ‘chastise and warn’. Alexandra Walsham demonstrates how damaging natural events were interpreted providentially and polemically in pamphlet literature. Walsham argues that the spread of Protestantism did little to diminish the religious significance of natural physical events. Once seen as miraculous, they came to be narrativised in terms of Providence – as God’s portentous warnings and righteous judgement. Throughout the seventeenth century, and amongst all ranks of society, ‘many continued to cling to the idea that the natural world was a billboard on which the Lord painted thundering sermons about the dire consequences of sin and impiety.’ These attitudes were not confined to reformed Europe, but were cross-confessional, polemical tools. Providentialist interpretations of events were so common, Walsham argues, that they formed an ‘ingrained parochial response to chaos and crisis’.

Providentialist pamphlets, typically costing four pence each, were targeted at an educated readership of middling-income consumers, and designed to be both informative and didactic. This was literature engaged in the process of Reformation. As early forms of ‘Protestant propaganda’, the ballads and pamphlets of contemporary news were ‘steeped in

Schott, Cities and Catastrophes/ Villes et Catastrophes: Coping With Emergency in European History/ Réactions face à l’urgence dans l’histoire européenne (Frankfurt am Main: Peter Lang, 2002), pp. 9-42, p. 42.
38 Walsham, Providence, p. 3.
the language of providence and judgement’. Stories of submerged and destroyed towns echoed the Biblical Flood, and when disasters were visited on transgressive communities they ‘exemplified a code of ethics which the Protestant clergy, no less than their precursors, were anxious to entrench.’ Common tropes and images displayed a remarkable continuity with the medieval Catholic past. Ian Green views this pamphlet providentialism as less a ‘code of ethics’ and more of a shared frontier at which a variety of strands of Protestant thought met, which ‘looked and functioned very differently according to where one was standing’. Likewise, downplaying any unified providentialist doctrine, Lake and Questier argue that this literature encompassed a ‘bundle of attitudes, assumptions and expectations’ that accommodated a range of proselytising agendas from a diversity of Protestant ideologies. Providentialism was then a shared resource of spiritual authority that Protestants drew upon to interpret the natural world. It follows that the readings of the natural world within them should be seen as contingent elements of an unfinished debate, part of a process of Protestantisation. Providential accounts of great deluges and inundations are, therefore, less transparent windows on a universal early modern attitude towards flooding and riverine phenomena, and more indications of an overarching cosmological framework which early modern people could choose to interpret the physical world.

As yet, cultural approaches to early modern English flooding have only made use of cheap print literature, and have as such only been able to account, quite correctly, for providential understandings. However, this source base is problematic. Late medieval accounts of floods and disasters share common features with early modern print – a reliance on ‘biblical motifs’, the creation of a canon of tropes and images, and the literary exaggerations of relatively routine events as ‘catastrophic’. Early modern printed narratives are formulaic, constitute a genre, and rely on common tropes and images to communicate disaster stories. These problems led Rohr to conclude that late medieval accounts were more

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biblical paraphrases than independent descriptions of events, posing significant problems for the cultural history of disasters. However, in the early modern period manuscript sources that are unavailable to medievalists render some of these problems solvable. Whilst floods could be inserted into providential narratives found in print accounts, providence was not the only frame of cultural reference available to explain floods and give them meaning. A reading of several source bases together shows that providential interpretations of flooding were not necessarily as dominant as the current historiography suggests (particularly at the parochial level), and that floods were understood as having complex customary, social, political, and personal, causes and meanings as well.

Contextualising providential printed narratives of early modern floods illuminates their remarkable coherence as a genre. Printed flood narratives were as much merchandise as they were literary and philosophical exegeses on disastrous events. News reports were written to excite and intrigue as much as they were to inform or proselytise. Joad Raymond has argued that reading the news was often done ‘without purpose, through a sense of compulsion or for pleasure’. Readers bought into a ‘competitive branch of the book trade full of titillating tracts’, produced and consumed largely as entertainment. Whilst printers preferred steady-selling titles, there was money to be made in selling works on controversial and contemporary events. After a shocking event, printers rushed to put out pamphlets describing and explaining what had happened. News could be very current, with swift turnaround times for authors and printers. The Dublin flood of 6 December 1687 was printed in a pamphlet that was licensed on 28 November, and ostensibly about a volcanic eruption in Catania, with the flood narrative quickly added at the end. Five titles were registered with the Stationers’

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47 Green, Print and Protestantism, p. 19.
48 Peter Lake has noted this was also the case with murder pamphlets, see Lake and Questier, The Antichrist’s Lewd Hat, p. 6, p. 13.
49 Anon., A Full and True Account of the Wonderful Eruptions of a Prodigious Burning Mountain, which cast out vast quantities of fire to the destruction of several whole towns. Together with a
Company after the 1607 flood, along with another extant but unregistered tract. The popularity and saleability of these accounts was so great that printers often registered two formats of the same narrative, a chapbook and a ballad, appealing to different markets. Some titles even formed mini-serials, as after the 1607 flood when *A true report of certaine wonderfull overflowings* was followed swiftly by *More strange newes*, which itself promised a sequel.

There was a great contemporary appetite for narratives of ‘wonderful overflowings’ and ‘woeful inundations’, along with other ‘wonder’ tales. These wonder tales are sensationalist, exaggerated, and conform to specific generic tropes that constrain narratives, and distort purportedly ‘true’ items of news. Disaster narratives formed a specific subgenre of wonder tales: 121 separate titles were registered with the Stationers’ Company from 1554 to 1708. Some printers invested heavily in the ‘monstrous news’ genre. John Taylor satirised ‘monstrous news [that] came Trundling in my way’, alluding to the notoriously prolific printer

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50 Raymond, Pamphlets, pp. 339-341; the unregistered title is Anon., *More strange newes: of wonderfull accidents hapning by the late overflowings of waters, in Summerset-shire, Gloucestershire, Norfolk, and other places of England with a true relation of the townes names that are lost, and the number of persons drowned, with other reports of accidents that were not before discovered: happening about Bristow and Barstable.* (London, 1607).

51 cf. Edward Arber (ed.), *A Transcript of the Registers of the Company of Stationers of London. 1554-1640 A.D.*, (5 vols, London: Privately printed, 1875-77), iii, p. 341; for example the ballad L.W., *A True Relation, Of/ The great Floods that happened in many parts of England in December and January last, to the undoing of/ Many the drownding of cattell and driving down of bridges and houses the drownding of people and/ washing up corn by the roots which was the means of Rising the prices of corn in and about the City./ Of London; with a warning for all people to amend their lives lest a worse thing befalls us./ The Tune is, aim not to high.* (London, 1674), and the chapbook, L.W., *Strange and true news from Lincoln-shire, Huntinton-shire, Bedford-shire, Northampton-shire, Suffolk, and Norfolk with Wilshire, and Sommerset shire, and many other places. Being a true relation of the great and many floods and inundations that happened i/ n England, in December, and January, and March 1674. The smothering of people in snow; the drowning of many cattel, the beating down of bridges and houses, the washing up of corn by the roots, and drowning of many people. To the great loss and grief of many hundreds in this nation. Also an account of many great waters, that happened in the reigns of Henry the 3d. Edward the 2d. Henry the 4th. Henry the 6th. Richard the 3d. Henry the 7th. Henry the 8th. Queen Mary, and the unmercifull wateres that fell in King Jane’s reign: as the book within doth more largely make mention.* (London, 1674).

52 Anon., *1607. A true report of certaine wonderfull overflowings; Anon., More strange newes*, sig. B2 (‘And let this suffice thee (good Reader) at this time, for a tast of more newes: As the rest of the Occurrences come to discouery, they shall be thine as soone as they are mine, if the Printer will so much be-freend thee.’)

of monstrous news, John Trundle.\footnote{Quoted in Gerald Johnson, ‘John Trundle and the Book-Trade 1603-1626’, \textit{Studies in Bibliography}, 39 (1986), pp. 177-99, p. 178.} Trundle printed forty-five chapbooks from 1603 to 1626, eleven of which were sensational news accounts, making it the most common genre in his repertoire.\footnote{Calculated from Watt, \textit{Cheap Print and Popular Piety}, p. 359.} Fellow printers invested in the wonder-pamphlet trade: Edward White and his son produced ten wonder titles, John Wright also produced ten (from seventy-eight total career pamphlets) and Henry Gosson printed seven (from a total career output of sixty-nine).\footnote{Johnson, ‘John Trundle’, p. 183; White and White registered eight titles in the Register of the Stationer’s Company, with a further two unregistered extant pamphlets, viz., Anon., \textit{1607 Lamentable newes out of Monmouthshire} (London, 1607), and Anon., \textit{More strange newes}; Watt, \textit{Cheap Print and Popular Piety}, pp. 359-60.} These were works that were printed and sold quickly, rarely making it past a single print run.\footnote{Lake and Questier, \textit{The Antichrist’s Lewd Hat}, p. 14.}

Printers used and re-used generic images to illustrate narratives and acts as distinguishing marks of a particular genre. These images have sometimes been incorrectly identified as images of specific English floods, or as evidence for the effects of floods.\footnote{Ian Rotherham, ‘Landscape, Water and History’, \textit{Journal of Practical Ecology and Conservation}, 7, 1 (2008), pp. 138-52, p. 139; Vittoria Di Palma, \textit{Wasteland: A History} (New Haven: Yale University Press, 2014), p. 96; Walsham correctly identifies such images as interpretive and impressionistic, see Walsham, \textit{Reformation of the Landscape}, p. 347.} Woodcuts of floods share repeated images of floundering people and animals, submerged churches and houses, and several feature infants floating in cradles. Pamphlets published after the 1607 flood contain bricolage images of various stories reported from Monmouthshire, Somerset, Gloucestershire and Norfolk (figure 3.1). They also closely resemble images of the ‘windy winter’ of 1613, and a depiction of flooding on the Rhine in the mid-seventeenth century (figure 3.2). Two of these images were even used to depict the flooding of the Llobregat, Ebro, Cinca and Segre rivers in Spain in 1617.\footnote{V. Rejaule (trans. Anon.), \textit{A true relation of the lamentable accidents caused by the inundation and rising of Ebro, Llobregat, Cinca and Segre rivers of Spaine together with a narration of a fearefull storme, which happened the third of Nouember, in the yeare 1617 in the hauen and port of Barcelona / written originally in Spanish by V. Rejaule the Kings advocate ; printed by authoritie at Valentia ; and now translated into English}. These generic images erase the specificities of particular disasters, and compress individuated sequences of causation, impact and blame into formulaic physico-religious events that have homogenous causes, effects and interpretations.\footnote{Morgan, ‘The representation and experience of English urban fire disasters’.
its emotional effect’ (one author even referred to a flood as a ‘monstrous birth of waters’). 61

Figure 3.1 Anon., 1607. A true report of certaine wonderful overflowings; Jones, God’s Warning to His people of England, Anon., 1607. Lamentable news out of Monmouthshire; Anon., More Strange News, A2v.

Common linguistic tropes point to a distinct disaster genre. News is ‘lamentable’, ‘woeful’, ‘wonderful’ and ‘strange’. Accounts of floods contain narratives of the coming of waters, losses in houses, goods and livestock, and then a plethora of individual stories of tragedy, escape and heroism. Despite their seeming individuality, certain set-pieces re-emerge across several of these narratives. Often these are the most emotive stories, involving women,
children or animals. A pamphlet on the 1607 flood relates the memorable story of how a little childe is affirmed to have bene cast upon land in a Cradle, in which was nothing but a Catte, the which was discerned as it came floating to the shore, to leape still from one side of the Cradle unto the other, even as if she had bene appointed steresman to preserve the small barke from the waves furie.\textsuperscript{62}

The image of a cradle floating to safety was not however unique to Monmouthshire. It featured in five other popular accounts of English floods across the seventeenth century, as well as in a Dutch account in 1663.\textsuperscript{63} The story was not even unique to the seventeenth century. Edward Hall had used the image of children ‘caried aboute the feldes, swymmynge in cradelles’ in his \textit{The union of the two noble and illustre families of Lancastre and Yorke} (1548) when describing the Duke of Buckingham’s water in 1483.\textsuperscript{64} Even earlier precedents can be found

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\textsuperscript{62} Anon., \textit{1607 Lamentable newes out of Monmouthshire}, sig. D1v.
\textsuperscript{63} Anon., \textit{A true relation of the great and terrible inundation of waters, and over-flowing of the lower-town of Deptford, on Thursday last, about two of the clock in the afternoon: With the manner how the river of Thames brake into the merchants yard, Greenwich Meadows, and several other places: removed great trees, level’d strong foundations, drowned may hundreds of catte, and flowing up to the second story of the Chambers, insomuch, that the water-men were forced to row up and down the streets with their boats, to take men, women, and children, out of their windows, and to save little children that swum in their cradles: With the appearing of three black clouds immediately before the flood, foreshewing the strange things that will happen, a sudden change, and each man to enjoy his own again.} (London, 1651), p. 5; L.W., \textit{A True Relation, Of The great Floods; Anon., The Sad and dismal year. Or, England’s great and lamentable flood; being a true, but woful relation, of the mighty rains, and overflowings of the stately rivers of Trent, Dove, and Severn, in several parts of the nation, and the number of men, women, and children, that persished by the force of this inundation. Likewise, the hideous noise and shrieks of poor sking babes and infants, that lay floting up and down the waters in their cradles, and the getting up of divers people to the tops of houses to save their lives. Together with the carryng away of great store of hay, pease, and beans, by the merciless streams; and the great loss and ruine of many cowes, horses, sheep, and oxen.} (London, 1655), p. 4; Anon., \textit{A Wonderful cry from the country, or, The wonder of wonders being a true and more perfecct account of the late great floods and extradordinary damages thereby occasioned throughout England, as the carryng away of houses, mills, and bridges, the drowning of several persons, with multitudes of catte, and particularly nine carryers wagons with all their horses and goods, lost on the roads to London, by the extra-ordinary waters : as also the miracular preservation of a child near Newark carried about two miles in a cradle by the overflowing of the river Trent and yet taken up alive.} (London, 1674), p. 6; Anon., \textit{A true report of certaine wonderfull overflowings, sig. B1v; Anon., Sad and lamentable newes from Holland Being a true relation of the great and wonderful inundation of waters, that brake in at the town of Gorkham, in the night-time, near the city of Amsterdam, where many stately houses became brried [sic] in the violent waves; both men, ywomen and children perishing in the raging billows. Also, the manner how the waters brake in again with great violence, on Munday last about noon, at the two strong sluces of Bonmel and Thieler, where about thirty villages were drowned and not any thing to be seen, but the tops of some few steeple and chimneyes, many perishing in the vaters; some escaping in boats, and the poor infants floating upon the raging vaves in their swadling-bands and cradles together with the sad and wofull cries and groans of the poor distressed inhabitants; and the ringing of the bells backward, to prevent the persishing of others.} (London, 1663), p. 5.
\textsuperscript{64} Edward Hall, \textit{The union of the two noble and illustre families of Lancastre [and] Yorke, beeving long in continual discension for the crowne of this noble realme with all the actes done in bothe the tymes of the princes, bothe of the one lineaage and of the other, beginnyng at the tyme of kyng Henry the
in the Netherlands, where, after the 1421 St. Elisabeth’s Day flood, a child in a cradle was said to have been saved by a cat keeping the cradle afloat, later found resting against a dike in Dordrecht that came to be known as the ‘Kinderdijk’. Portrayals date from at least as early as the late fifteenth century, with the cat, child and cradle depicted on the Master of the St Elizabeth Panels in the Rijksmuseum.

Such events were included for their symbolic potential. One author even invited readers to speculate on the veracity of his account, alluding to its fiction-like qualities:

A number of these strange Tragi-comicall Scaenes have been acted upon this large Stage of waters: It would swell into a Massie Volume to Chronicle them all: let these therefore which I have delivered unto you, bee sufficient, as a cast of Gods Judgements: these are ynoough to make you know hee is angry, let them likewise be inough to make us studie how to allay his anger.

The poet John Stradling noted how these narratives blurred the boundary between credibility and incredulity, calling the 1607 flood a ‘novel subject for historians, and likewise for poets, they can write true things which will scarce gain credence.”

Statements of losses are also very common. These indicate how such pamphlets were used in a semi-formal capacity to solicit charity. Pamphlets and ballads about large scale fires functioned as pleas for financial assistance in the wake of large scale destruction, with some ballads being printed alongside ‘briefs’ that allowed communities or individuals to solicit charity.

Few briefs were issued for flood losses (see chapter 5), yet there is still a relationship

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67 Anon., 1607. A true report of certaine wonderfull overflowings, sig. C1
69 Christopher Kitching, ‘Fire disasters and fire relief in sixteenth-century England: the Nantwich fire of 1583’, Historical Research, 54 (1981), pp. 171-87; Morgan, ‘The representation and experience of English urban fire disasters, c.1580-1640’. For examples see Anon., The Araignement of John Flodder and his wife (London, 1615) narrating and soliciting for the great fire of Wymondham (1615), and
between these pamphlets and the brief trade. Most pamphlets note a financial sum of money lost, with some including them in the titles of the works, and others featuring itemised lists of losses. Printers that produced briefs also produced flood pamphlets. John Trundle and Edward Allde both printed flood pamphlets and briefs, indicating a link between the market for ‘strange news’ and charitable briefs. We should then see these pamphlets as part of attempted relief campaigns, with all the embellishment and exaggeration that comes with them.

These are all framed with providential warnings as introductions and conclusions. Pamphlets tend to open or close (sometimes both) with a providential gloss on the events described. For Thomas Day, floods were the fourth of five categories of warning that God had given England in the early 1580s. Before relating news of the Lincolnshire floods of 1613, ‘T.I.’ informed readers that such events ‘warneth us to bee watchfull for the day of the Lord which is at hand, least sodainely his wrath be kindled against us.’  

A True Relation, of The great Floods of 1674 opened with the lines ‘Oh England, England, tis high time to repent, thy drunkenness and whoredom now lament’. The author of a pamphlet on a flood in Deptford in 1651 ended the narrative with a particularly republican providential warning. Preceded by an eclipse, a sign to ‘expect great inundations’ and ‘dreadful Revolutions’, the flood was a ‘signal from Heaven, to purge Nations and Commonwealths from oppression and

Banbury, Oxfordshire, To our wel-beloved friends, to whom this present writing shall come. Wee the Maior, Iustices, Minister, Aldermen, and Burgesses of the Borough of Banbury in the county of Oxon. wish all welfare and happinesse. (London, 1628), STC (2nd edn.) 1342.5 appended to William Whateley, Sinne no more, or a sermon preached in the parish church of Banbury on Tuesday the fourth of March last past upn occasion of a most terrible fire that happened there on the sabbath day immediately precedent (London, 1628).  


For Trundle, see Anon., A miracle, of miracles; Anon., The Araignment of Iohn Flodder. For Allde see Anon., Lamentable newes out of Monmouthshire; James I of England, James by the grace of God king of England, Scotland, France, and Ireland, defender of the faith, &c. to all and singular archbishops, bishops, archdeacons, deanes and their officials ... greeting : whereas wee are credibly given to understand asswell by the humble supplication and petition of our poore distressed subiects Amy Lynsteed, widdow, the late wife of William Lynsteed & Ioan the wife of Robert Morse (London, 1624), amongst others. 

Thomas Day, VVonderfull straunge sightes seene in the element, ouer the citie of London and other places on Monday being the seconde day of September: beginning betweene eight and nine of the clocke at night, increasing and continuing till after midnight: most strange and fearefull to the beholders. (London, 1583), p. 5.  

T.L., A miracle, of miracles, sig. A3v  

L.W., A True Relation, Of/ The great Floods.
tyranny’. Concluding a pamphlet on the heavy rains and floods of 1682, the anonymous author of *England’s Most Dreadful Calamity by the Late Floods* claimed these should have been expected: ‘what can we expect less, then that God should send his Judgements abroad, when as Rebellious Man perseveres in his obstinate Rebellion against him?’ Formulaic narratives of disastrous flooding are then as formulaic as the images that adorned them.

Common literary images were often used to appeal to a particular readership. Many printed flood narratives emphasise the common literary figure of the merchant, one of the most popular subjects in Elizabethan literature. Given the ‘literary interest in commercial wealth’ it is unsurprising to find frequent mentions of merchants’ and tradesmen’s losses. *A True Report of Certain Wonderful Overflowings* emphasises losses by Bristol and London merchants, and the cities’ strategic importance for trade. In an account of coastal flooding in 1570, ‘certain Merchants’ are said to have escaped the flooded Saracen’s Head in Newport having been ‘sitting there at dinner’. A report of the 1598 inundation of the Tiber in Rome refers to important export commodities being lost, including books, medicines, wine, oil and grain. A flood in Dublin in December 1687 was notable as it ‘washed away great quantities of Timber, Goods of all sorts,’ as well as knocking over a gentleman with his coach and horses. These accounts privileged stories about merchants, a strategy that could make them more saleable and popular. This generic approach acts against the specificity and ‘local-ness’ of events as stories about local devastation are subsumed within wider, more accessible and

76 Anon., *England’s most dreadful calamity by the late floods being a most lamentable account of the great damages sustained by the fearful invntations, caused by the unparalell’d rain which fell on the 24th of April, 1682: and the late rains which have lately hapned: containing the several houses, barns, cattle, out-houses, stacks of hay and corn, being carried away: together with the number of persons drown’d, and of some thousands of acres of ground layed under water: giving a relation of the particular damage sustained in the city of London, and the suburbs thereof, at Branford, Camberwell, Dulwich, Depford, on the river Thames* (London, 1682), p. 5.
78 Ibid., p. 31; Green, *Print and Protestantism*, p. 36.
81 Anon., *A Terrible Deluge or overflowing in Roome, at their Christmasse last: Whereby a great number of houses were overthrowne, to the value of sixe Millions of Duckets lost, and a thousand foure hundred persons drown’d* (London, 1599), p. 4.
saleable forms.

Focussing on merchants also meant focussing on London as a locus of credible information. As with monster pamphlets, disaster reports anticipated scepticism, and used an elaborate apparatus of veracity, based on the credibility of London, to prove their truth. A miracle, of miracles opened with a greeting specifically to its London audience, ‘loving friends and readers in London’. Concerned that readers might ‘suspect the Veracity’ of A Wonderfull cry from the country, its author provided ‘Disasters nearer hand’ for comparison with those from ‘Instances remote’. Authors set themselves up as credible amidst the ‘usual unfaithfulness of men ordinarily in reporting of such accidents’. Readers were expected to be ignorant of provincial events. One pamphlet assured readers that the ‘News which I have to tell is very True, although... it comes from many places out of thy Knowledge’. Even accounts from purportedly local correspondents were anxious to emphasise their credibility, and to link that credibility to London. Should anyone wish to be ‘farther satisfied concerning the Truth’ of a pamphlet relating coastal flooding in 1671, they could ask Richard Clay, ‘lately come from Boston’ to Wool Quay, ‘who affirms that he rowed a Boat over the Banks of Boston’. Other correspondance was framed like continental military news, featuring gentlemen’s private writings that were often ‘reluctantly’ shared (Peter Malbone lamented that his report was ‘neither delightful to write, nor pleasant to reade’), including information on the personal relationships of authors in an attempt to establish credulity.

84 T.I., A miracle, of miracles, sig. A3.
85 Anon., A Wonderfull cry from the country, p. 7.
87 L.W., Strange and true news from Lincoln-shire (London, 1674), p. 3.
89 David Randall, Credibility in Elizabethan and Early Stuart Military News, (London: Pickering & Chatto, 2008), pp. 96-105; cf. Anon., More strange newes, sig. B1; Peter Malbone in Anon., Strange and terrible news, from Holland, and Yarmouth. Being, a perfect relation, concerning the inundation of the south sea; and of its drowning the rich and populous city of Amsterdam; with divers other places in Friesland, Holland, Brabant, and Flanders, and the names of them. Also, the over-flowing of the river of Rhine, and sinking 60 parish churches, and drowning 100000 men, women and children; and how they row in boats near Amsterdam, over the tops of houses. Together, [sic] with the breaking in of the sea at Sod (near Yarmouth) drowning a great part of the country and many
In the most well-known piece of popular disaster literature, *The Storm*, Daniel Defoe was explicit about how he constructed his narratives of the 1703 storm and floods. Appealing to readers of the *London Gazette* and *Daily Courant*, he solicited stories from local correspondents.\(^90\) In compiling these, Defoe was sure to omit ‘common and trivial Damages’, and put in nothing here common with other Accidents of like nature; or which may not be worthy of a History and a Historian to record them; nothing but, what may serve to assist in convincing Posterity that this was the most violent Tempest the World ever saw.\(^91\)

Such a clear narrative strategy – selecting the most unusual, shocking and ‘worthy’ incidents – makes explicit what other pamphlets did without as clear acknowledgement. London-based scriveners selected and curated examples and verified them in print. These printed texts were structured according to generic narrative tropes. The local qualities of these narratives were lost as they were redeployed to conform to the needs of the commercial print business.

This body of printed literature is, therefore, the site of competing motivations. Authors tested the boundaries of Protestant physico-theology, using demotic forms to push specific confessional interpretations of scripture. Printers exploited time-sensitive market opportunities, chasing sales to the middling sort and re-hashing parts of old pamphlets to cash in on the latest disaster. But what were readers doing? We know relatively little about how these texts were read and interpreted, and whether a providential literary corpus meant a providentially-minded readership. Green notes how the ‘most sensational and theologically the most conservative’ providentialist texts sold well, but that, overall, the market for providential works was small. He conjectures that the potential for a variety of interpretations made providentialism unattractive, and that other interpretations may have prevailed ‘in the countryside’.\(^92\) Yet Green’s argument, and the others discussed above, are derived from the

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\(^91\) Defoe, ‘The Storm: or, a collection of the most remarkable casualties and disasters which happen’d in the late dreadful tempest, both by sea and land’, in Defoe, (ed. Hamblyn), *The Storm*, pp. 1-180, p. 55.

\(^92\) Green, *Print and Protestantism*, p. 437.
evidence of print culture. The following sections contrast the image of a highly providentialist early modern mentalité derived from a study of print with more local, personal accounts derived from people’s own experiences of flooding. The diverse authorship of these local accounts can give us some insight into how far ideas and images circulated in print were accepted and utilised by those who experienced floods and wrote about them.

**Local sources**

Moving from these printed sources to local accounts reveals fewer formulaic and providential responses to flooding. The following sections draw on under-exploited parish registers and minute books from courts of sewers. Parish registers are local records of baptisms, burials and marriages, officially required from 1538, that generally survive from the late sixteenth century onwards. Due to their obvious genealogical utility they have mainly been used by family historians, historical demographers and religious groups. The records of Commissions of Sewers are made up of court minutes from sessions governing flood defence and drainage at a regional level and below. These have been used by landscape and environmental historians researching the management of water in the English landscape, but have been neglected by the discipline at large due to their primarily local significance and technical nature. The flood narratives found in these two sets of sources can illuminate a more complex history of early modern understandings of flooding than is currently provided by scholarship that focuses primarily on print.

**Parish registers**

Despite the nationwide use and survival of parish registers, as a corpus they are unstructured

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and idiosyncratic. There is incoherence even within registers; records of events appear in-line with contemporaneous baptisms, marriages and burials, at the end of registers, or scrawled on seemingly random pages. They have a diverse and inconsistent authorship, depending on when they were written and the incumbent parochial officials’ adherence to government orders. The earliest compulsory registers were to be written every Sunday by the priest, and after 1598 were to be signed by two churchwardens. The book itself was to be kept in a chest with multiple locks and keys to be held by the priest and the churchwardens. The Barebones Parliament of 1653 attempted to secularise the registers by taking them out of the hands of priests, and placing them in the hands of ‘Parish Registers’, who were to be elected by all ratepayers, sworn in under oath and approved by a magistrate. This practice was not widely adopted, and many registers remained in the hands of clergy, who in some regions were the only people capable of undertaking the role. Some, like Reverend John Wade of Hammersmith, were so close to their registers that they also used them as personal diaries. From 1598 new entries in the register were to be read from the pulpit every Sunday, and parishioners complained if this was not done. Whether written by a sole priest or by an elected official, these registers in their composition, verification and public reading were communal documents.

Despite being locked away, parish registers were generally accessible to those who wished to consult them. John Favor’s Halifax parish register was an ‘important part of godly reading’, and tales of wayward parishioners’ providential judgements were circulated amongst godly readers, including Nemeniah Wallington who included them in his collection of

100 Tate, The Parish Chest, pp. 44-5.
‘Examples of God’s Wrath’.\textsuperscript{105} William Averell, clerk of Saint Peter’s, Cornhill, included verse on the instructional value of his parish register. On the register’s flyleaf, Averell entreated his parishioners to live well to ensure they were placed in ‘the Book of Life’, ‘Where Gods Elect are for ever inrolled’. The parish register itself was instructive so that parishioners of

… every age and calling,
May heare beehold theyr faces:
Theyr rising and theyr falling,
Theyr endes and wretched cases:
Which glasse weare it well used,
Life should not bee abused.\textsuperscript{106}

Bishop Kennett of Peterborough (1718-28) encouraged his clergy to note down incidents of local importance, such as fires and floods, so that they might become ‘chronicles of many strange occurrences that would not otherwise be known, and would be of great use and service for posterity to know’.\textsuperscript{107} Such descriptions of natural phenomena informed John Morton’s \textit{Natural History of Northamptonshire} (1712).\textsuperscript{108} John Snow, the improving estate steward of the Ashe family lands along the river Avon at Downton in Wiltshire wanted to ensure that harmony was maintained with local commoners, and requested that any land deals, ‘all covenants and agreements be drawne and kepte in the court rolls or parish registers.’\textsuperscript{109} In 1695, a dispute over the manorial boundaries of Stanton Lucy and Bromfield (Shropshire) was settled by mutual subscription to a written set of boundaries, which were pasted into the respective parish registers.\textsuperscript{110} In their generation and social circulation these registers are

\textsuperscript{105} Cambers, \textit{Godly Reading}, p. 170.
\textsuperscript{106} Granville Leveson Gower (ed.), \textit{A register of all the christninges, burialles & weddinges within the parish of Saint Peeters upon Cornhill} (2 vols, London: Harleian Society, 1877), i, pp. ii-vii.
\textsuperscript{107} Chester Waters, \textit{Parish Registers in England}, p. 69.
\textsuperscript{108} Ibid., p. 69.
chronicles and repositories of ‘communal memory’.\textsuperscript{111} As semi-official narratives written and shared by parishioners, memoranda in parish registers are part of what research into modern flooding has termed the ‘folk’ archive of local flood memories.\textsuperscript{112} These local stories often only had a ‘parochial relevance’, but it was this local specificity that caused them to resist being subsumed within broader national narratives.\textsuperscript{113} Printed narratives designed to be sold in London and in regional markets took local stories and wove them together with common tropes and images, glossing them to give them national significance, erasing much of their local relevance. This local relevance is however vitally important if we are to understand the local impact and meaning of floods. These narratives have very different frames of reference to the narratives that were produced for wider consumption, and revolve around local place and custom, personal experience, domesticity, and homeliness. Furthermore, there are more flood events recorded here than in printed news accounts. Taken together, they give a picture of damaging floods as localised community landscape events.

These local accounts report the effects of flooding not on merchants, national commerce, and great ports, but on locally important customary and communal arrangements. Customs ‘structured [the] lived environment’ of rural communities, and this landscape of custom is reflected in parochial flood narratives.\textsuperscript{114} In 1626, the parish register of Attleborough, Norfolk, remarked on how flooding was particularly high in the common on ‘St. Barnibie’ (June 11), traditionally the first day of the hay harvest.\textsuperscript{115} In Tewkesbury flooding forced inhabitants to abandon the communal hay-harvest due to floods of the Severn

and Avon. So much hay was left uncollected that large amounts of grass were ‘found unmowed the Bartholomew tide following, the greatest part of which... was used for thatch.’

Large floods both disrupted and invoked the myriad distinct and specific local arrangements in affected communities. In 1607 the effective use of common property saved the lives of twenty parishioners in Arlingham, Gloucestershire. The register here notes that

had it not been for the Cummne boate, which was comonlye above used upo the 10th daye, and in the Tenure of Mr Robert Yate and Thomas Driver manye, about ye number of 20. had lost their lives, or, at the least, binne greatly endangered to be stived or starv’d to death.

Authors highlight the local impact of destructive events when they invoke customary and communal arrangements. These were ‘important elements of … individual and collective identities’, and ‘knowledge systems which governed life’, structured senses of place, and demarcated ‘limits of belonging’. Parish registers make clear that floods disrupted customary spatial practices, yet narratives with much wider audiences and difference motivations lose this local specificity.

Rather than describing floods in places relative to London, floods in parish registers disrupt particularly local landmarks. The register for Arlingham notes that water in 1607 was ‘so hye that one might have morde a boate at Thomas Kinges gate’. The flood was destructive, as the fields of ‘Horsecroft and Newbridge being then sowde with wheat, [were] all overflowde’.

Likewise, at Almondsbury the vicar recorded that

water was in Rednyng in Sansom’s new chamber to the upper stepp save twoo, and in Hobbes house syx foot hyghe. In Ellenhurst at Wades howse the sea rose neere 7 foote and in some howses there yt ran yn at one upper wyndow and out

116 ‘The "Black Book" of the Corporation of Tewkesbury’, in William Dyde, The History and Antiquities of Tewkesbury from the Earliest Periods to the Present Time Collected from Ancient Records and other Authentic Materials, to which is added some account of the medicinal water near Tewkesbury (Tewkesbury, 1790), pp. 94-5. Although not a parish register, the Black Book of the Corporation of Tewkesbury is a communal administrative document kept by the corporation, rather than the parish, that contains a series of lengthy memoranda in the style of a parish register.

117 GA P18 IN 1/1, ‘Arlingham Parish Register, Baptisms, marriages and burials 1539-1645’, fol. 58v. I am grateful to Rose Hewlett for her assistance with this difficult transcription.


119 GA P18 IN 1/1, ‘Arlingham Parish Register’, fol. 58v.
Thomas Botelar, vicar of Much Wenlock, wrote of how storm flooding in his parish in 1545 caused the brook to come up ‘in the street to the Style agst the Steple & again up Sheynton Street beyond the Stone house called Bastard hall.’ These specific referents are of only local significance. We do not know where King’s gate was, or how high the steps to Sansom’s new chamber were, but it was significant for Arlingham and Almondsbury that a boat could be moored at the gate and that water lapped the new steps. These local landmarks are indicative of the importance of significant local sites in early modern communities, and constitute part of what Andrew McRae has called ‘a spatiality of localism, immediately recognizable yet strangely opaque to the outsider.’

Floods could thus be understood through their interaction with significant communal sites, and could themselves inscribe a particular place with memory and meaning. John Leland recounted one such place in Barnstaple (Devon), where the flooding of salt marshes led to the drowning of a woman, and the construction of a causeway over low salt marsh. The causeway, built ‘long sins’, was remembered for the tragedy that spurred its construction: ‘the tyde cam so sore yn by a gutte, that brekith yn there from the haven shore to the marsch, that she could not passe: and crying for help, no man durst cum to her, and so she was drownid.’ High tides and floods could also help demarcate boundaries. Thomas Earsden viscerally demonstrated the customary boundaries of Amble, Northumbria, in the 1580s. He imparted the bounds of Amble and its salt marsh to one Edmund Finch, pointing to a boundary stone and declaring: ‘when I’m dead and rotten you may say of a truth that when St Cuthberts spring putt upp at the height... the salt water and tide choke the said stone’.

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123 John Leland (ed. Lucy Toulmin Smith), *The Itinerary of John Leland In Or About the Years 1535-43* (5 vols, London: George Bell and Sons, 1907-10), i, p. 170.
David Rollison has referred to early modern rural landscapes as ‘memory palaces’, in which certain places and landmarks were invested with meaning beyond their immediate practical utility or aesthetic qualities. This is further evidenced by narrative accounts of flooding from parish registers: floods were significant when they broke into the ‘memory palace’ and disrupted communities’ mnemonic landscapes. Narratives of flooding produced by and for local memory reflect the discrete and specific experiences that are produced by the meeting of a destructive physical force and the complexities of local communities – they interrupted, and were then reintegrated within, particular mnemonic landscapes that both shaped and constituted community.

Parish register narratives invoke history and memory on a smaller scale than the national narratives that placed local events in longer chronologies of disastrous events. Whereas pamphlet literature connected floods with the book of Genesis, or previous national flood events, parish register accounts operate on locally-specific timescales. Different formats for different audiences utilised different scales of what Raingard Esser has termed ‘chronologisation’ in flood chronicles and histories. Direct comparisons in print placed current events into a history of disaster, linking the sufferings of contemporaries with those of revered ancient civilisations, placing them in a poetic, historical and philosophical context that could invoke a reader’s literary horizon. G.T. a correspondent in Amsterdam made this explicit. Man, ‘though he be absolute in himself, and stands upon his own Bottom’, is well instructed by example and comparison, ‘for by that means he may see what he is, or what he may be’. This is a good example of the tendency to ‘submerge’ the local past into a ‘national’ past in early modern English historical writing. This occurred in print accounts, but was avoided in parochial accounts that show an attitude towards history that is often unconcerned with comparison, and instead relates events to the memories and experiences of

128 Esser, ‘The Late Great Inundation’, p. 79.
the people and places affected by flooding.

Local memory was particularly important in understanding the severity of a flood. In 1673 in the parish of St Mary’s, Reading, the register noted how a higher flood could not be ‘remembered by any Man here living’.\(^{131}\) Likewise, in 1686 in Hawkeshead, Lancashire, a storm produced a ‘terrible flood as the like of it was never scene in these parts by noe man liveinge’.\(^{132}\) The 1720 flood in Flamstead, Hertfordshire, was described as ‘the bigest flod that ever was known’.\(^{133}\) In Welford-on-Avon, Warwickshire, in 1588, the flood was significant not because of echoes of the general deluge, or because of regional or national flood events, but because ‘owlde Father Porter buried about iij years past being then a hundred & nyne yeares of age never newe it soe highe’, and because John Perry had known water to come up to his bed, but not as high as ‘a yeard & a halfe’ as it was on this day.\(^{134}\) Long Newton, Gloucestershire, could not find ‘any parallel’ of the storm and flood of November 1703 ‘in our Chronicles.’\(^{135}\) In Almondsbury, Gloucestershire, the primacy of local flood history is made explicit by the vicar John Paul who, motivated by his experience of the devastating 1607 flood, wrote a chronological history of floods in the parish on the front of the register stretching back to 1483.\(^{136}\) This is in contrast to chapbooks like L.W.’s *Strange and true news from Lincoln-shire* which related local East Anglian floods in the context of ‘an account of many great waters, that happened in the reigns of Henry the 3d. Edward the 2d. Henry the 4th. Henry the 6th. Richard the 3d. Henry the 7th. Henry the 8th. Queen Mary, and the unmerciful waters that fell in King Jame’s reign’.\(^{137}\)

In the printed literature, tales of merchants, gentlemen and unnamed women and children are provided to demonstrate the powerful effects of flood surges. In parish

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131 Berkshire Record Office D/P98/1/1, ‘Parish Register of Reading St. Mary, Reading’.
134 Warwickshire Record Office [hereafter WRO], DR 892/1, ‘Register of baptisms marriages and burials 1561-1689, Parish of St Peter Welford-on-Avon’, p. 100.
memoranda individual stories are also related, but on a more personal level. A flood in Ketton, Rutland, in 1709 startled the vicar Robert Butcher. It was ‘a remarkable flood, so very extraordinary yt ye water thereof came into ye kitchen of ye Vicarage house of Ketton, which truth is attested by me Robt. Butcher’. 138

Family relationships are often noted giving us an insight into the importance of kinship at times of crisis. At Morville in Shropshire the ‘great flood’ of 16 December 1662 meant that John and Anne Crappe had to have their son John baptised in neighbouring Tasley, with the water so fierce ‘that they could not go to their parish Church’. 139 Robert Langdon, parish clerk of Barnstaple, noted that the 1607 flood caused ‘the death of one James Ffroste, a toaker and tow of his children in which his howse fell downe upon them & killed them’. 140 At Welford-on-Avon, flood waters ‘did take away suddenly one Sales daughter of Grafton out of hilborow meadowe’ and carried her on a hay rick over a quarter of a mile to Stratford Bridge. 141 The waters here were so fearful that they caused a mother to forget her child:

John Rennies wife then millward was soe amazed that shee sate still till she was almost drowned and was much besides her selfe and so farr amist that shee did not know her owne child when yt was brought unto her. 142

In Arlingham the 1607 flood was particularly memorable for the vicar Henry Childe, as the salvation of his wife and daughter were at stake:

Upon the same day Mrs Anne (who then was not churched), for feare of the waters, was, with Mr Childe then vicar & his familie, fain to be ferried over with ye boate (from the Vicaridge). And this day was just 3 weekes after Elizabeth Childe was borne. 143

Here it was not the occurrence of a flood that was soteriologically dangerous, but the immediate effects of the flood – that Mrs Childe was unable to be ‘churched’ after giving

139 Tasley Register, in Fletcher (ed.), Shropshire Parish Registers, i, p. 11.
140 S.K. Haslett and E.A. Bryant, ‘The AD 1607 coastal flood in the Bristol Channel and Severn Estuary: Historical records from Devon and Cornwall (UK)’, Archaeology in the Severn Estuary, 15 (2004), pp. 81-89, p. 84.
141 WRO DR 892/1, ‘Welford Parish Register’, p. 100.
142 Ibid., p. 100.
143 GA P18 IN 1/1, ‘Arlingham Parish Register’, fol. 58v.
Childe was later moved to reflect poetically on three floods experienced during his tenure at Arlingham:

Thrice have I seen a fearful inundation
Within the space of two and twentie years,
As few of my coate have in al their station;
Which when it comes (as’t will) unto men’s eares
What hart so hard that can abstain from teares?
But woe is mee that I am first to dwell
Where seas, enragde with windes, so proudlie swelle!
God knows who shall survive to see the next,
To be, as I have binne, with feare perplext.145

Despite the importance of local, customary, historical and familial contexts for flood victims, parish registers are not entirely free of providential understandings of flood events. Local narratives do occasionally contain providential interpretations, which were indeed ‘a practical source of consolation in a hazardous and inhospitable environment’.146 The register from Headcorn, Kent, shows a tradition of providential interpretations of particularly bad floods. In 1625, the register records that ‘such a flood of water upon the grounds of the sayd parishe as drowned all the medow ground to a great value such as in the memory of any man livinge never was seene’. The scribe goes on to note: ‘I would to god that it might be a warninge to turne us from our sinnes which was the cause of the same fearfull Judgment and thereby to amend o[urselves] to the preventinge of greater [harm]’ After another flood in 1671, the 1625 flood was recalled, and God’s hand again detected in its cause. There was a very great & remarkable flood such an one as ye like had not been fourty year

144 ‘Churching’ was the ritual reintegration of mothers back into the parish church after giving birth. William Coster, ‘Purity, Profanity and Puritanism: The Churching of Women 1500-1700’, in W.J. Sheils and Diana Wood (eds), Women in the Church: papers read at the 1989 Summer meeting and the 1990 Winter meeting of the Ecclesiastical History Society (Oxford: Blackwell, 1990), pp. 377-387. It should be noted that this is a male, clerical perspective on churching. Research has suggested that churching was viewed by most women as ‘little more than an opportunity to meet and celebrate with their peers’ in this period. Susan Wright, quoted in David Cressy, ‘ Purification, Thanksgiving and the Churching of Women in Post-Reformation England’, Past & Present, 141 (1993), pp. 106-146, p. 110.


146 Walsham, Providence, p. 3.
before, to ye great dammage of ye inhabiants & others, Now the from this & all other judgments (wch may justly be inflicted upon us for our sins) the Lord deliver us.\[^{147}\]

In Almondsbury vicar John Paul looked to God not as the *cause* of the 1607 flood, but as a benevolent mitigator in the weeks after the flood:

> God grant that the groundes now drenched in the deep may be recovered and become frutfull agayn wth speed els one callamyte wyll followe after a former mysery as one wave of the sea do followe an other.\[^{148}\]

In Hawkeshead, a flood in 1686 ‘caused great hurt the never like was known’, and the scribe there recorded his prayers for mercy: ‘I pray God of his greate mercy graunte that none which is now liveinge can never see the like againe.’\[^{149}\]

These examples serve as important reminders that providential interpretations of flooding, particularly in hopes for recovery, were indeed relevant to flood victims. Their comparative scarcity among local sources, however, points to the importance of other local interpretive strategies.

Together these parochial narratives emphasise local place, local people and local custom. Events that clearly shook communities are narrativised in such a way as to restate the fundamentals of the ‘extensive value system of neighbourly relations’.\[^{150}\]

As coping strategies they reaffirmed the powerful bonding image of the well-ordered community encoding ‘usable’ memories that ‘pointed to [their] endurance’.\[^{151}\]

The previous chapter has argued, and geographical research has demonstrated how the impacts of climatic events are unevenly socially distributed.\[^{152}\]

Clearly these floods had differential effects on the members of these communities – particularly affecting the elderly, the young and post-natal mothers in these examples. Responding to these stresses and strains on the idea of community, the narratives

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\[^{147}\] Kent Archives, P181/1/2, ‘Headcorn Ss. Peter and Paul Composite Register 1611-1716, Headcorn Ss. Peter and Paul Parish Records’, cover.


\[^{149}\] Cooper (ed.), *The Oldest Register Book*, p. 1x.


\[^{151}\] Wood, *The Memory of the People*, p. 278.

found in parish registers were part of corporate coping strategies that ‘tied people together, providing a stock of shared experiences’.

**Memorial plaques**

It has been argued that parish registers were a semi-public repository in which communities, or at least prominent members of communities, wrote their flood histories. Before leaving the parish to move on to consider the records of commissions of sewers as communal documents, one further under-exploited parochial source can reveal some of the ways in which communities came to understand the floods that affected them.

Floods were commemorated by physical memorials in parish churches. Plaques were erected in two identifiable types. The first is the flood-gauge plaque, which indicate the height of the water and the date of the flood. In Rome there are many of these flood-gauge plaques, some with inscriptions, dating from as early as the twelfth century. Notable examples of early modern flood-gauge memorials in England can be found at Worcester, where the Watergate entrance to the Cathedral grounds records flood levels from 1672 to the present day. The other type offer brief textual summaries of the floods. Sometimes these more narrative plaques also indicated water levels. They have been described by Christian Rohr as part of the ‘mental management and memory’ of flood disasters.

Plans for such monuments do not often survive, but directions for a similarly themed, but much grander monument in London do. Plans for The Monument, a 62 metre column commemorating the Great Fire of London, were included in the first City of London rebuilding act (1666, 18 & 19 Car. II, c. 8), which specified that:

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157 Rohr, ‘Floods of the Upper Danube River’, p. 137.
better to preserve the memory of this dreadfull Visitation, Be it further enacted
That a Columne or Pillar of Brase or Stone be erected on or as neere unto the
place where the said Fire soe unhappily began as conveniently may be, in
perpetuall Remembrance thereof with such Inscription thereon as hereafter by
the Maior and Court of Alderman in that behalfe be directed.158

Memorialisation was in the minds of parliamentarians and city governors just weeks after the
fire. The mayor and aldermen, the leading civic officials were to write the inscription, much
like the flood plaques of parish churches. Directed to be for ‘memory’ and ‘perpetuall
Remembrance’, we can see how it was important to establish a lasting physical and textual
public memory of the catastrophe.

Such plaques fix flood memories in place. Narratives in parish registers relate stories
of floods that proceeded through meaningful local places. The significance of a particular
flood is demonstrated by its interaction with significant places. But by their very nature, these
significant places are quotidian. In the daily swinging of Thomas King’s gate, climbing of
Sansom’s steps and cooking, eating and conversing in Robert Butcher’s kitchen, flood
memories might lose their presence, or change their meaning. Just as narratives were an
attempt to fix an understanding of a flood, often in the days or weeks following it, monumental
plaques were an attempt to fix that memory within a community, in the spiritually, socially
and communally significant place of the parish church. Their place on church walls would
ensure that, theoretically at least, every parishioner would be reminded of the flood every
week.

158 Statutes of the Realm, v, p. 609; this quotation is misattributed to a ‘1670 City Churches
Rebuilding Act’ in Lisa Jardine, On a Grander Scale: The Outstanding Career of Sir Christopher
A string of flood plaques remember the 1607 flood across north Somerset and south Monmouthshire (figures 3.3-3.9). Local memorials have been characterised as ‘purposefully crafted messages intended to reach into the future’, whose ‘primary task’ was to make visitors ‘remember the dead’. In these examples, flood plaques do remember the dead, but not always (figures 3.7, 3.8 and 3.9). They are certainly an attempt to project the memory of the

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flood into the future, yet are not always intended for ‘visitors’. The plaques are reminiscent of the narratives in parish registers for their brevity, with some markers containing little or no contextual information (especially figure 3.4). Placed on or in the parish church, these markers must be read in concert with local religious practice. They would have been seen at times when communities gathered for weekly services. It is in this context of sociability and conversation that they should be read. Early modern monuments were ‘not fixed or static entities’, but were the subject of discussion, debate and occasionally defacement.160 Flood plaques remain undiscussed as a phenomenon in the literature on early modern monuments and memorials, likely because the subject has been approached from primarily religious and art historical perspectives.161 Memorials and monuments, usually sponsored by a local gentleman, or a churchwarden, have been said to ‘reflect elite values’, because of how they attempt ‘to create enduring, spectacular representations of political authority and cultural ideals’.162 What these few examples show is that the memorial plaque, as both a visual and a narrative form, could be used to communicate communal memory in ways similar to the vernacular use of the parish register. Despite being primarily elite-directed, they sought to represent a communal experience in a common and accessible social space. Rather than ‘enduring, spectacular representations of political authority’, they are more humble, less overtly political (yet still emphasising the importance of their primary patrons – see figures 3.7, 3.8, and 3.9) reminders of spectacular events than their more spectacular personal near neighbours, the funerary monument and tomb.

160 MacKinnon, Earle’s Colne, p. 18.
161 Sherlock, Monuments and Memory; Michael Penman (ed.), Monuments and Monumentality Across Medieval and Early Modern Europe (Donington: Shaun Tyas, 2013).
162 Sherlock, Monuments and Memory, p. 12.
Figure 3.4 Flood level marker at St. Mary the Virgin parish church, Nash, Monmouthshire. Photographs: Mike Kohnstamm and British Broadcasting Corporation.
Figure 3.5 Flood level marker at St. Peter’s former parish church, Peterstone Wentlooge, Monmouthshire. Photo: Mike Kohnsamm.

Figure 3.6 Flood level plaque at St. Bridget’s parish church, St. Brides, Wentlooge, Monmouthshire. Photo: Mike Kohnsamm.
Figure 3.7 Flood level plaque at St. Mary Magdelene parish church, Goldcliff, Monmouthshire. Photograph: Robin Drayton.

Figure 3.8 Flood memorial plaque, All Saints parish church, Kingston Seymour, Somerset. Photograph: Lois Elsdon.
Figure 3.9 Flood memorial in St Mary the Virgin parish church, West Walton, Norfolk. Photograph: Susan Oosthuizen.
Commissions of Sewers

Whilst the parish registers give us a window on local literate culture, records of Courts of Sewers give us access to a world of oral culture. The records of Commissions of Sewers used here are the transcribed proceedings of oral court sessions along with copies of written evidence and petitions submitted to commissioners relating to flooding and drainage. Typically, a jury of twelve men would present information about flood defences in a specified area before a group of commissioners, who would deliver orders based on this evidence, all of which was transcribed by a paid Clerk of Sewers. The juries were staffed by men of the ‘middling sort’, amongst whom were found ‘small knots of reliable men’ who served in local public office.\(^\text{163}\) By the request of the Gloucestershire Commissioners of Sewers, for example, they were the ‘very sufficient’, ‘honest and substantial men’ of the manors liable to flood.\(^\text{164}\) Amongst the commissioners were manorial lords, the very wealthiest yeoman farmers, members of the peerage, and members of parliament.\(^\text{165}\) In contrast, the juries were made up of men of good credit and standing in their local communities, deemed ‘good and lawful’ by their neighbours.\(^\text{166}\) The records produced in these court sessions are thus transcribed and edited versions of poly-vocal conversations that involved the more prosperous and well-respected members of local society.\(^\text{167}\)

The flood narratives contained within these sessions were told for both the present and for posterity. Jurors’ presentments offer legal and customary readings of local hydrological issues, and are, like the other sets of sources, far from dispassionate relations of events. As transcripts of oral custom, written presentments were both a threat and an opportunity for local communities. In a northern European context, communities tried to avoid creating fixed precedents for flood defence liability when neighbours required assistance, as

\(^{164}\) GA D272/1/1, ‘Gloucestershire Court of Sewers, General Minutes, 1583-1606’, p. 34; D272/1/3, ‘Gloucestershire Court of Sewers, General Minutes, 1615-1631, 1635’, fol. 2r.
\(^{167}\) The Commissions of Sewers are discussed at greater length in chapter five.
this could have financial reprecussions for decades afterwards. Yet a fixed textual record of a right or obligation could be of great assistance in years to come, and contemporaries acknowledged this political potential within sewers’ juries. These are then texts that are also engaged in dispute and contestation, offering partial, political readings of flood problems that formed part of strategies to cope with recovery and maintenance costs. They are essentially administrative sources that give insight beyond the traditional administrative source for pre-modern water history – charters and proclamations – offering a blend of both these sources’ ‘normativity’ and more personal sources’ subjectivity.

These records emphasise local understandings of immediate human impacts on hydrologic systems. The great flood of 1607 both overtopped and broke down sea defences. People did whatever they could to remove water stopped up behind sea walls, including breaching their own defences to allow water to escape. Complaints about subsequent floods caused by these actions are common:

after the great flood cam down into John Hortts Orchard in Redwick, and there cutt a great sluice to let forth the water and never since made up sufficiently to defend the same, but every high tide, we your poor supplyants being dwellers there, be greatly damnified and almost undone thereby.

The Surrey and Kent commissioners attended to problems caused by human-induced flooding. In March 1577 a ‘Mr Willowes’ was put in charge of floodgates on his land at Deptford, and was ordered to ‘kepe the water there indefferently betwene the Miller & others greved at all tymes according to the water Marke when landwaters come downe extraordinarily’. Not only were extraordinary waters expected, but they were expected to be dealt with through careful management. When waters beyond even extraordinary expectations caused flooding, commissioners were also keen absolve riverside inhabitants of any fault. In May 1576 a breach

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169 For much more on the relationship between orality and text in water management, see chapter five.
171 GA D272/1/1, ‘General Minutes 1583-1606’, p. 22.
in Church Marsh caused a flood in Crooked Acre in Deptford. This was on the land of Miles Case, whose defences failed to withstand the force of the water. The flood here was described as having been caused specifically ‘by the violence of the greate flode of land water & not by the defaulте of Miles Case’. In these records, acknowledgements that human activity played a large part in determining the occurrence and severity of flooding are much more apparent than in providential pamphlet literature.

Old flood defences might cause damaging flooding in these records. In 1575 a bridge in Lincolnshire was deemed insufficiently wide to allow water to pass under. It was

to narrowe for yssuyng of the water in the Beache at great downfalles or at the utterance of fen waters [in] watry yeares wherfore yt ys thought exspedyent to have the seyd brydge half a yarde wyde [so] yt may suffycyently convey all waters & at all suche tymes out of ragyn downfall or ... years.

In Gloucestershire, faulty seawalls at Oldbury were repeatedly recognised as producing hazardous conditions for those living behind them. Floods here were expected as ‘the Sea Walls of Oldbury are so decayed & broken, that yf they be not speedely Amended, there is like to ensue great daierger to the whole Country there abouts, Subiect to the outflowing of the Sea waters’. The commission recognized that disruptive floods could be overcome with proper maintenance. In the east of the county, commissioners ordered the cleansing of Hatherop mill brook so that ‘the surrounding and overflowing of the water ther cannot be daangerous for her majesty’s subjects to travel’. Rather than reacting to floods as aberrations of nature and demonstrations of divine displeasure, those that lived and worked with water understood flooding as products of technological failure, making reference to communally constructed and understood ‘local climate models’. These narratives presented floods as frequent life events that can be explained in technical terms, and that could and should be prepared for.

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173 Surrey and Kent Commissioners of Sewers, Court Minutes, p. 267.
174 Holland Sewers, iii, p. 33.
175 GA D272/1/3, ‘General Minutes, 1615-1631, 1635’, fol. 27r.
176 GA D540/T29, ‘Presentments and orders of the Commissioners of Sewers, 1596-97’.
These understandings of flooding were also underpinned by political-economic assumptions. A petition to the Gloucestershire court notes how floods caused by watermills at Oldbury ‘annoyed, hindred and oppressed’ the inhabitants of Moreton.\(^{178}\) Another order notes how the insufficient repair of floodgates caused the overflowing of 2,000 acres (8 square kilometres) of farm land in Oldbury, Moreton, Kington and Rockhampton tythings. A floodgate was not made sufficiently secure, and ‘more salt water suffered to flowe in threat then ought to be and when the water was in, then it was pennen pounded and kept in the mill damp or mill pond two footes higher then the ancient viewe or marke’. This contravention of custom was all done purely for ‘pryvatt’ profit, against the needs of the community.\(^{179}\)

Similarly, in the Lincolnshire Fens in 1547 the failure of upstream inhabitants on the River Welland to adequately scour the river caused flooding:

> greate habundance of fresshe water which should have his rightfull course passage and race in the said maigne ryver unto the see without lett is stopped and disturbed of his said course and therby doothe excessyvely rebownd and brust over the banckes and gretely dooth surrownd and destroye aswell the meedes feldes and pastures in Kestven as also the marysses or fennes in Kestven and Holland.\(^{180}\)

Caused by an abrogation of customary duty, the river’s ‘right’ to flow was interrupted and productive riverside pasturage damaged. Elsewhere the commissioners for Holland required work to be done so that water ‘may passe orderly by’ during a flood.\(^{181}\) When river usage changed and floods ensued, the Surrey and Kent commission was quick to blame an innovating, profiteering miller. When Francis Lee, a gentleman from Rodderhithe, converted his gunpowder mill to a corn mill in 1579 ‘for his owne private gaine’, the increased flow he required to mill corn caused him to extract ‘more water than in tyme paste’ and ‘a great deale of more water then his pondes or dytches bene able to receive and holde but runneth over on every syde to the great anoye losse & hinderaunce of all thenhabitaunte owners & farmers

\(^{178}\) GA D272/1/1, ‘General Minutes 1583-1606’, p. 41.
\(^{179}\) Ibid., p. 51.
\(^{180}\) *Holland Sewers*, i, p. 34.
\(^{181}\) *Holland Sewers*, ii, p. 50.
theraboutes’. In these narratives fens, rivers and estuaries were all seen as shared hazards and resources which should not impinge on an individual’s property in their ancient workings, or be monopolised for private gain. Situated in areas of both potential profit and peril, riverside communities relied on appeals to custom that sought to maintain safe coexistence with rivers.

Accusatory political explanations of flooding also directly contrast with the politics found in the printed pamphlet literature. Pamphlet accounts of flooding tend to smooth over the political implications of flooding for local institutions. Whilst providential interpretations are offered to make macro-political criticisms, local political structures are most often praised. After the 1607 flooding of the south west, justices were said to be ‘busie and painful to see the business [of rebuilding] goe forward’. According to one author, the negative effects of flooding in the Netherlands were mitigated by ‘the blessing of Almighty God, and the great care and vigilance of our Magistrates, who have quitted themselves extraordinary well in this Affair.’ Similarly, the ‘exceeding vigilant’ magistrates of Amsterdam helped mitigate flood damage in 1663. Raingard Esser has argued that floods were politicised during the Habsburg rule of the Netherlands, with authors reading floods as judgements on differing political powers. In the records of Commissions of Sewers we see a much more local, ‘micro’ form of politics emerge in the aftermath of flooding.

Narratives produced in these areas reflect a sense of Richard White’s assertion that pre-modern societies’ ‘knew the river through the work the river demanded of them’. Thus when the inhabitants of Moreton and the jurors of Holland and Kent took their complaints to

182 Surrey and Kent Commissioners of Sewers, Court Minutes, p. 329.
183 Anon., More strange newes, sig. B.
184 N.N. in Anon., A True and perfect relation of the late and dreadful inundation which happened in Holland on Sunday Novemb. 3, 1675 at 4 of the clock afternoon, Saturn being then in opposition to Mars by which lamentable accident all the land is set under water from Amsterdam to Leyden, Utrecht, Woorden, Tergow, all South-Holland, and a great part of North-Holland, about Hoorn, &c. : together with an account of those further miseries and calamities that followed thereupon, as the drowning of men, women and children, and multitudes of cattel : as also a brief account of a dreaful storm with thunder and lightning on the same day at Antwerp and Gent, to the loss of the lives of divers porsons [sic] (London, 1675), p. 5.
185 Anon., Sad and Lamentable News from Holland, p. 4.
their respective Commissions of Sewers, they expressed themselves using languages of
custom, common rights and liberties that were grounded in a political economy of work. Deepsed
physical relationships with riparian resources are expressed when individuals and local
communities are in dialogue with each other in court, attempting to regulate their riverine
habitats, something wholly absent from commercial print literature.

Very occasionally sewers juries invoked providence as an explanatory concept. This
was done when explaining why flood defences had not been repaired, with providential
intervention having stopped work being finished. In December 1646 the Gloucestershire jurors
found that a sea wall at Thornbury had not been repaired, but this was ‘noe greate neglect of
the inhabitants, neyther the Country, by that meanes much endangered (butt hindered by a
divine and speciall pvidence) so that there cannot bee that suddaine repayre made’.188 Other,
non-Divine mitigating circumstances were given by juries at other points, frequently featuring
bad weather.189 These instances show that juries were willing to invoke Divine agency as a
direct cause for the non-performance of duty, but did not extrapolate any moral value from
this, and did so very infrequently. They show an awareness of the inner workings of the Statute
of Sewers, which, through judicial precedent in the early seventeenth century had established
a working concept of an ‘Act of God’, after which one could not be held responsible for
repairs.190

These narrative explanations of floods in manuscript sources demonstrate that if
providential interpretations were ‘ingrained parochial responses to crisis’, they were not the
only responses. Local accounts presented here give another perspective on hydrographic
cultures, showing that those that lived with flooding and managed complex hydrologic
regimes on a daily basis had different narrative responses to damaging flooding to those that
did not.

Despite these differences, the distinction between manuscript and print ought not to

188 GA D272/1/5, ‘Gloucetershire Court of Sewers, General Minutes, 1646-1648’, fols. 20v-21.
189 i.e. Ibid., fol. 22; GA D272/1/10, ‘Gloucetershire Court of Sewers, General Minutes, 1661-1663’,
fol. 90v; GA D272/1/11, ‘Gloucetershire Court of Sewers General Minutes, 1663-1665’, fols. 2v-3.
190 See Chapter four, and both Edward Coke in English Reports, lxxvii, p. 1137; and Hermann Loimer
be drawn too precisely. There is evidence from parish register accounts that print narratives, or at least national news, had an impact on local understandings of disaster. The register for Long Newton, on the Gloucestershire-Wiltshire border, contains the strongest suggestion of ‘intertextuality’ between manuscript and print accounts. Long Newton is twenty-four kilometres inland from the Severn, safely ensconced on the other side of the Cotswold Edge escarpment. The author of a series of late seventeenth- and early eighteenth-century memoranda wrote long notes on weather and flooding, mainly concerning Severnside south Gloucestershire and Bristol. He recorded a flood in March 1688 which drowned ‘lands bordering upon the river of Severn’ and ‘many Cellars in Bristol’. In July 1696 he reported that ‘it rained very hard’ for three days, and ‘did a vast damage upon the lands & meadows bordering upon the Rivers in so much that it forced away down the Currents several summer ricks & it’s... reported it did many thousands pounds damage upon the Avon & Thames & many other Rivers.’191 Using language very similar to printed pamphlet literature, he wrote of ‘the most general calamity this nation ever felt’, the 1703 storm, in which ‘many people were knocked on the head in London’, and many died in ‘Monmouthshire and Glamorganshire’.192 As well as knowing about the effects of storms and flooding, the author also wrote about the successes of the navy. Triumphant accounts of various battles at sea, and particularly those by the Duke of Marlborough, are afforded more space than narratives of local floods or weather events. A year after the ‘most general calamity’ of 1703, the author proudly reported that ‘this happy year This nation had many remarkable occurrences of Gods good Providence in giving good success and victory to our Armies & Fleets’.193 Here a naval victory, but not a flood, was considered an example of God’s providence.

Such late seventeenth-century examples are concurrent with the post-Restoration proliferation of print titles.194 They are examples of the ‘feedback’ of national historical discourses into local memory.195 The author of the Long Newton register clearly felt he and

192 Ibid., p. 72.
193 Ibid., pp. 72-3.
his parish were part of a wider community, information about which could be gleaned through personal networks, or through print. Sources such as this provide an understanding of the interpretation of national news events in local communities, through the eyes of specific readers. These tantalising, oblique references to the world of print news point to an increased level of integration between the national, literary construction of disaster and its local memorialisation. In this later period we can see a general convergence of our three source bases. Daniel Defoe corresponded with many local observers in compiling his monumental account of the 1703 storm. Bishop Kennett encouraged the use of the parish register for the burgeoning discipline of local natural history. Local scholarship and ‘provincial learning’ played a key role in the rise of natural science as an epistemological approach to nature in the early eighteenth-century.\(^{196}\) Locally produced accounts remained distinct enough to be considered qualitatively different from print media, offering a local perspective on events, yet were not entirely divorced from wider discussions of events, particularly in the later seventeenth century. They are an important reminder of the multiple mental worlds and literary geographies that early modern parishioners accessed and articulated, and the ways in which they converged as print and the written word played an increasing role in local cultural life.

**Conclusion**

It is significant that few of the narratives of flood events in the manuscript sources examined here are framed providentially. If there is a providentialism at play then it is an unwritten structural belief in God as the primary cause and nature as His instrument. This lack of providentialism found among local narrative accounts chimes with recent findings for the early modern Netherlands.\(^{197}\) Yet, in demonstrating that providentialism was not necessarily an ‘ingrained parochial response to chaos and crisis’, and that parishioners made plenty of other narrative responses, this chapter nevertheless bolsters recent studies of Providence. It


shows how conceptions of divine intervention through the natural world were ‘essentially fluid and dynamic’, with ‘the boundaries and character of the natural and the supernatural responsive to changes in circumstance.’ With a multiplicity of explanatory frameworks at hand, the invocation of providence in the manuscript accounts under study here becomes more meaningful when it did happen. It shows that providential readings of the natural world were indeed potent, polemicized tools used in a conversation about faith, and symbolized more than a unified ‘code of ethics’.

More importantly, these examples show a remarkable diversity of modes of historical emplotment with regards to early modern floods. In three different discursive arenas we see floods caused and explained by a number of different phenomena, each linked to the motivations of their respective authors and the needs of their various audiences. As parts of coping strategies these various interpretive frames attended at different times, to the different needs of different ‘imagined communities’. Providential literature set tragedy in a cosmological and national context, appealing to long-held beliefs in God’s intervention in human and natural affairs. Parish registers localised events and provided images of communal solidarity and good neighbourliness. Narratives in courts of sewers’ minutes afforded opportunities to fix blame and create a lasting testament to the responsibility of negligent neighbours or deficient flood defences. Together they attest to the variety of mental worlds inhabited by early modern people, and to the coexistence of the sacred, communal and legal geographies they inhabited, produced and contested.

Together they show how writing the environment was (and still is) a politically and spiritually inflected act. As contributors to a 2009 special issue of Historical Geography on ‘Narratives of Climate Change’ demonstrated, such narratives ‘are as much about the spatially and temporally subtle patterns of the social effects of climate variability as climatic crisis’.

Just as much as in the contemporary world, early modern geographical phenomena inspired a ‘matrix of narratives’ rather than a univocal chronicle of events. The profusion of flood narratives points to early modern English ‘hydrographic cultures’ – cultures that expressed their hydrology and relationships to it *in writing*. Here we have cultures that richly textually encode relationships to water across genres in attempts to cope with the diverse impacts of flooding.

The experience of flooding was always locally negotiated, and local authors narrativised their experiences, and those of others, in ways that were socially relevant. In narrating accounts of notable floods, early modern parish registers and deponents to courts of sewers reveal understandings of riverine phenomena that demonstrate the variety of specific local physical and cultural systems that structured local life. When a flood came, these systems – be them familial, economic, religious or political – both influenced and were influenced by an excess of water. By placing narratives of flooding back into their immediate local contexts we obtain a better understanding of the experience of damaging socio-natural events and the workings of the communities that experienced them.

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202 Ibid., p. 222.
4. Flooding and political discourse

Abstract

This chapter traces the impact of ‘improvement’ on representations of flooding in the sixteenth and seventeenth centuries. It argues that by viewing flooding through the paradigm of improvement, governmental actors, lawmakers and agricultural entrepreneurs clashed with longstanding local interests as flooding emerged as a political issue. New ideas of improvement helped alter previous medieval attitudes towards flooding as something to contain and control to seeing them as something to remove and conquer. This brought practical schemes and administrative arrangements into conflict, as the nature of flooding was now on the political agenda. The chapter then examines three issues that arose from this politicisation of flooding that were inflected with the ideology of improvement: competing readings of the Statute of Sewers, crown-sponsored projects to reclaim land from the sea, and fenland drainage. These issues had roots in the early sixteenth century, with birth of improvement and the 1532 Statute of Sewers, were developed under Elizabeth and James, and made much worse under Charles I. The chapter shows that across this later Tudor and early Stuart period, descriptions of environments became explicitly political, and floods were politicized more than ever.

Introduction

After receiving the Ten Commandments, Moses stood before the Israelites. He implored them to follow the direction of the Lord, and follow His directions into a promised land of bounty and fertility (Deuteronomy 8:7). Translating the Latin Vulgate Bible in the later fourteenth century, Lollard scholars described this promised land as ‘a good lond’, ‘the lond of ryueris, and of stondynge watris’, in whose ‘feeldis and mouteyns the depthis of floodis breken out’. Other versions of the Lollard texts told of ‘poondis’ and ‘gedrynges [gatherings] of flodes’.

The promised land was wet. Its fertility and appeal came from its bounteous flowing and standing waters. In the 1520s, William Tyndale prepared a version of the Pentateuch. The promised land of his Moses was ‘a londe of riuers of water, of fountens and of springes that springe out both in valayes and hylles’. No longer did the waters of the promised land stand, gather or pool. Tyndale emphasised the movement of lesser bodies of water across land. In 1611 the King James Version was published, featuring yet another land of plenty. Simpler, drier and more orderly, this became ‘a lande of brookes of water, of fountaines, and depths that spring out of valleys and hilles’. Fountains now sprang in place of water that stood and floods that gathered. The promised land no longer flooded, it flowed.

This chapter attempts to explain how, why and for whom a promised waterworld became dry. It is an attempt to understand shifting representations of floods and wet landscapes, to account for how flooding came to be perceived as problematic, and how flood-prone landscapes became denigrated and subject to an unprecedented level of external intervention through drainage and reclamation schemes. New attitudes towards agriculture and the natural world altered the ways in which English people thought about flooding in the early modern period. Ideas of improvement shaped the ways in which different interest groups valued and represented land that was either constantly or regularly under water. This is then an investigation into some of the links between the ideology of improvement, economic projects designed to further Crown and national revenues, and the perceived value of flood-prone landscapes.

In investigating these links, flooding is approached from cultural and political perspectives. In like manner to Keith Thomas, this chapter ‘seeks to expose the assumptions, some barely articulated, which underlay the perceptions, reasonings and feelings of inhabitants of early modern England’. Analysis of the political aspects of representations of landscapes has formed a significant strand of recent environmental history. William Cronon

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3 King James Version, Deuteronomy 8:7.
has urged environmental historians to pay attention to the political ideas that undergird narrativisations of environmental change, and has drawn attention to the importance of the observer’s subject position analysing their descriptions of landscapes. For Simon Schama, landscapes are always pregnant with these descriptions, narrativisations and representations, for all landscapes are ‘culture before they are nature’. They are ‘constructs... projected onto wood and water and rock’ which impose themselves on their referents, and themselves become ‘part of the scenery’. Rather than turn away from these multiple layers of meaning we should, as Peter Coates has argued, ‘rejoice as well as fret over the adulterations of subjectivity’ in relation to conceptions of ‘nature’. An essentially discursive approach allows us to see how different narrative and framing devices were utilised by different groups seeking self-interest. Established sets of value-laden descriptions and understandings of flooding were freely adopted often even by competing interest groups in their attempts to legitimise actions on floodplains. By studying the rhetorical aspects of arguments over flood defence, reclamation and drainage disputes we can gain ‘insight into meanings that went beyond purely practical considerations’, and understand the cultural means by which groups attempted to ‘accommodate technological change to the natural world’, or to resist it. As James C. Scott has argued, the ‘vocabulary used to organize nature typically betrays the overriding interests of its human users’. When instrumentalised, this vocabulary can shape the use and functioning of environments, being imbued with what Daniels and Cosgrove have called ‘the social power of landscape imagery’.


A discursive-framing approach to flooding and improvement is particularly pertinent here, as flood-related improvement schemes were conflicts over resource use, and were thus accompanied by significant amounts of explanation and argumentation. Differing frames of reference structure elements of communities’ coping strategies. The narrative frames invoked in water management ‘mobilise the values against which “risks” and... “problems” are judged to exist.’ Languages and registers employed in narrative description limit and constitute the conceptual range available for meaningful discussion, making them crucial in shaping understanding and subsequent action. As Gadgil and Guha have argued, such cultural products serve as the ‘ideological debate legitimizing the claims of the various modes’ of resource use. ‘Environmental ideologies’ are then a reflection of material struggles as well as power struggles, and ‘reflect the distribution of power in society’. Recent research has highlighted the importance of how flooding and other environmental phenomena are conceptualised, or ‘framed’. Framing refers to the ‘process of constructing and representing our interpretations of the world around us’, with the frames applied to conflicts and disputes providing a heuristic device to assimilate complex new information and situations with that which we have already encountered. They are ‘shortcut devices people use to characterize situations, problems or adversaries.’ Frames can then obscure and exclude as well as synthesize and accommodate. Analysing the languages used to describe place and articulate claims to ownership helps us ‘understand how their unstated and conflicting assumptions determine what contending interests can and cannot communicate to each other’.

13 Madhav Gadgil and Ramachandra Guha, This Fissured Land: An Ecological History of India (Oxford: Oxford University Press, 1993), p. 56.
18 Williams and Matheney, Democracy, Dialogue, and Environmental Disputes, p. 6.
By paying attention to disputes, this chapter goes beyond previous literary histories of wetlands. The cultural history of flooded land is more complex than literary histories have allowed for. William Howarth has argued that for ‘thousands of years, the human attitude toward wetlands was consistently negative: they were read as dangerous, useless, fearful, filthy, diseased, noxious.’ Rod Giblett has focussed on ancient and early modern negative portrayals of wetlands, and the fenland in particular, to argue for strong continuity in attitudes towards flooded landscapes across the millennia. Other recent research has focussed solely on the negative characterisations of fenland found in early medieval mythology. This chapter shows how in the early modern period these negative images of wetlands that have received such attention were actually just one side of a dialogue, albeit between unequal conversants.

This chapter begins with a narrative of the development of official attitudes towards wetlands and flooding, from the later-medieval period until the seventeenth century. It then outlines the ‘ideology of improvement’, and demonstrates the implications of this for wetlands and floodplains. The effects of this new improving attitude are then traced through three disputes that took place across the later sixteenth and early seventeenth century, over the Statute of Sewers, coastal reclamation and fenland drainage. Together these examples show how floods became politicised over the course of the period.

**Medieval attitudes towards flooding**

In the medieval period flood liable land was valued much more highly than it would be later in the seventeenth century. Having been extensively settled by the eleventh century, flood liable coastal marshlands provided vulnerable, but highly valued, and highly productive agricultural land once it had been inned and embanked. The medieval period until the fourteenth century was an age of European wetland reclamation, from the fenlands of England

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to Languedoc in the South of France.\textsuperscript{22} The coastal lowlands of Elloe underwent large reclamation undertakings in the twelfth century, creating long, elongated parish boundaries that stretched further north east to the new shoreline.\textsuperscript{23} By the thirteenth century these were subdivided and tenanted to a minute degree.\textsuperscript{24} In the Gloucestershire parish of Slimbridge, the Lords Berkeley reclaimed several portions of riverside arable and pasture grounds in the 1330s.\textsuperscript{25} Comparisons with upland agricultural land are striking. In the early fourteenth century on the Barnhorne estate of Battle Abbey in Sussex, reclaimed marshland was worth twelve pence per acre – double, and in some place quadruple what comparable upland acres were worth.\textsuperscript{26} Other coastal and lowland acres in Thanet, Romney Marsh, and the silt-rich Lincolnshire fenland could command twelve pence. This was a significantly high price in the context of southern England as a whole, being in the upper two percent of land values south of the Trent.\textsuperscript{27}

Whilst coastal wetlands were threatened by incursions from the sea throughout the fourteenth and fifteenth centuries, communities and landowners overwhelmingly opted to invest in and innovate agricultural practices on marshland.\textsuperscript{28} Marshland was seen as a profitable site for religious houses. In the fourteenth century, the Cistercian abbey at Stratford Langthorne was (according to Leland) ‘first sett emonge the low marsches’, until it was ‘with sore fludes defacyd’ until Richard II ‘toke the ground and abbay of Strateforde in to his protection... reedifie it’ so that the monks could move back among the ‘marches’.\textsuperscript{29} Seasonally inundated land sustained a rhythm of hay growing, exceptional summer grazing

\begin{quote}
\textsuperscript{24} Ibid., p. 23.
\textsuperscript{25} \textit{Berkeley Manuscripts}, i, pp. 307, 327, 341.
\textsuperscript{26} Stephen Rippon, “Uncommonly rich and fertile” or “not very salubrious”? The Perception and Value of Wetland Landscapes’, \textit{Landscapes}, 1 (2009), pp. 39–60, p. 53.
\end{quote}
and winter fishing and fowling in the most flooded areas (chapter one).\textsuperscript{30} The most heavily flooded landscapes, such as the Lincolnshire fens, sustained a particularly amphibious economy, with fishermen crossing inundated lands on stilts.\textsuperscript{31}

As Stephen Rippon has shown across southern England, wet and flooded land enjoyed a comparatively high economic and cultural value.\textsuperscript{32} In fifteenth-century Kenilworth, marshes were more desirable than dry land. In his metrical life of Henry V, Thomas Elmham praised the monarch for \textit{creating} marshes at The Pleasance at Kenilworth Castle. In 1414 Henry changed a dry area overgrown with brambles that harboured suspiciously French foxes to a ‘peaceful marshland’, ‘sweetened with running water and ... made nice.’\textsuperscript{33} Glastonbury Abbey made extensive use of its wetland environment, exploiting both the adjacent ‘Meare’ area for fishing and fowling, as well as draining areas to use more intensively as meadows, supporting the most successful part of the estate’s economy by the early fourteenth century.\textsuperscript{34} The success of these areas ensured that reclaimed wetlands were ‘amongst the most highly valued lands within medieval estates.’\textsuperscript{35}

Whilst these areas retained a high cultural and economic value in the middle ages, from the late fourteenth century, occupation and intensive forms of exploitation became increasingly expensive. Galloway and Brandon have both shown how in the late fourteenth and across the fifteenth century, land losses and partial retreat was taking place after the ‘crisis’ years of the 1370s and 1380s.\textsuperscript{36} Across the fourteenth century, the Sussex Ouse valley

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\textsuperscript{30} Joan Thirsk, \textit{Fenland Farming in the sixteenth century} (Leicester: Leicester University Press, 1965), p. 25  \\
\textsuperscript{31} Michael K. Jones, \textit{The King’s Mother: Lady Margaret Beaufort, Countess of Richmond and Derby} (Cambridge: Cambridge University Press, 1992), p. 130.  \\
\textsuperscript{32} Rippon, ‘Uncommonly rich’.
\end{flushright}
was subject to inundations even after banks were raised. In South Lincolnshire, the pace of coastal reclamation slowed in the fourteenth and fifteenth centuries. In South Wales, Goldcliff Priory was abandoned and Margam Abbey retreated its sea defences 100 metres inland as part of a general late-medieval decline that saw increasingly challenging circumstances in coastal and lowland areas. In the late fourteenth century, the fen edge communities of Cambridgeshire suffered particularly from flooding, and on the coasts large storms battered the Dorset port of Lyme Regis. The North Sea area more generally suffered from more variable storm intensity and more ‘catastrophic’ flood events, and landscape deterioration, which have been linked to decreased investment in flood defences. In 1395 ‘certaine sandbancks and hills, by reason of the floweing and ebbing of the Sea’ at the mouth of the Welland in Holland, Lincolnshire caused the estuary to be so silted that ‘the water of Welland cannot have his course into the sea, by reason whereof divers of the lands and tenements in Holland be drowned’. Significant floods affected the Pevensey Levels across the fourteenth century, accompanied with increased defence spending to protect valuable arable, yet after the winter of 1408/9, storms forced a dramatic switch to pasture that continued as the levels became seasonal grazing in the fifteenth century. The continuer of pseudo-Ingulph recorded that in 1467 ‘snows and continued rains’ over the period of a month left

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‘scarcely a house or building, but what the streams of water made their way and flowed through it’.\textsuperscript{44} The increasing difficulty with which these areas were exploited across the fourteenth century could be linked to the worsening climatic conditions in the mid-century, attributable to warmer than average Atlantic sea temperatures and a rapidly cooling Arctic, which both contributed to the increased frequency of winter storms and summer rains.\textsuperscript{45} Yet the impacts of these exogenous changes were mediated through social and economic systems. The depressed state of the land market, declining agricultural profits, higher taxation, and the lack of available external capital from the late thirteenth century onwards impacted on communities’ abilities to adequately defend themselves, making the ‘exogenous shocks to the economy’ of large storm flooding ‘inexorably linked to endogenous responses.’\textsuperscript{46}

Marshland that remained in the sixteenth century was then in a precarious position. In his \textit{Itineraries}, Leland noted early sixteenth-century decline in Great Porsand, Lincolnshire, where the fen was said to have been ‘ons arable ground but low; but now for lak of cure fenne and marisk’.\textsuperscript{47} Lowland arable did still persist, but would require water management that involved significant maintenance and organisation. Leland observed arable farming in the marshes of central Lincolnshire, finding ‘goode whete and benes in moste paroches of the low marsche yn Lindesey’.\textsuperscript{48} He noted how the Somerset Levels were at risk of inundation if they were not constantly maintained. Leland captured this well in his description of the wall protecting the marsh from the River Sowey:

\begin{quote}
... ther is an arme cast out by force out of Sowey water, and a marsch walle made by mennys policy betwixt this arme forcid out and the principale strame of
\end{quote}

\textsuperscript{44} H.T. Riley, \textit{Ingulph’s chronicle of the abbey of Croyland: with the continuations by Peter of Blois and anonymous writers} (London: Henry G. Bohn, 1854), p. 443; Summers incorrectly attributes this information to Ingulph himself, Summers, \textit{The Great Level}, p. 39.


\textsuperscript{47} Leland (ed. Toulmin Smith), \textit{Itineraries}, ii, p. 147.

\textsuperscript{48} Ibid., v, p. 34.
Sowey, and this waulle continuith to Hartelak bridge, and mile lower: and then booth go soone after into the mere. If this marsch waulle were not kept, and the canales of eche partes of Sowey river kept from abundance of wedes, al the plaine marsch ground at sodaine raynes wold be overflowen, and the profile of the meade lost.\textsuperscript{49}

The drainage and flood defence changes that were made on these landscapes from the sixteenth century onwards were in some sense rational responses to changing economic circumstances. Land that was more expensive to maintain would yield less profit and the cause of those difficulties, flooding, was identified as a factor contributing to declining outputs. However, the change in the perception of wetland environments was also a product of broader changes in agricultural and economic thought. The economic observation that floods were reducing viability did not necessarily imply the particularly hard-line policies that followed – policies of dessication aimed at all kinds of flooding, rather than just highly damaging storm flooding. The change in perception of wetland environments was reliant on a cultural shift that involved a revaluation of the role of water in the agricultural landscape. At the heart of this cultural shift was the ideology of improvement.

\textbf{The contribution of improvement}

Improvement, from the Old French \textit{en} (‘into’) \textit{preu} (‘profit’ or ‘advantage’) first entered the English language in the early sixteenth century.\textsuperscript{50} What began as a term referring specifically to raising rent on agricultural land evolved over the course of the sixteenth and seventeenth centuries to encompass a wide range of gain-seeking activities. These involved the modification of flood-prone landscapes, the image of which was fundamentally altered by the seventeenth century.

\textsuperscript{49} Ibid., i, p. 147.

The earliest printed uses of improvement regarding agriculture date to the 1520s and the agricultural and surveying manuals of Anthony and John Fitzherbert.51 In these manuals, and in the first half of the sixteenth century more generally, improvement referred to increasing rents on one’s estates, and increasing profit more generally.52 They focussed on refining rather than rupturing the status quo, seeking to move the performance and governance of a landlord’s estate closer to a perceived natural order and thus the will of God.53 It was not until the later sixteenth century, and amongst Elizabeth’s court in particular, that improvement came to stand for a much broader project involving the alteration of the physical world for both financial and non-financial rewards.54 Much of the practical action that accompanied this desire to alter the physical world for gain came from classical authors, and ought to be considered as part of an agricultural renaissance.55 The previous sense of increased quantifiable – financial – returns was retained, and bound up with qualitative alterations in land-use.56 New forms of ‘improvement’ ranged from the introduction of new cash crops such as tobacco, the introduction of new techniques in the clothing industry and the manufacture of new consumer goods such as pins, to the drainage of fens, disafforestation and the canalisation of rivers.57

52 Ibid., p. 129.
Private gain was part of these schemes. Fen drainage was promoted with a poem that claimed ‘The Profit’s certain, and with ease, ‘tis got.’\textsuperscript{58} Such schemes however had to be seen to be honest, and to both produce wealth and employment.\textsuperscript{59} Projects ‘built on the honest Basis of Ingenuity and Improvement’, Defoe claimed, were ‘doubtless in general of publck Advantage, as they tend to Improvement of Trade, and Employment of the Poor, and the Circulation and Increase of the publck Stock of the Kingdom’.\textsuperscript{60} These projects and their conceptual underpinnings had the capacity to significantly disrupt contemporary visions of order, stability and hierarchy, and thus necessarily drew ‘together legal, moral and economic implications in order to justify radical processes of change in the English countryside.’\textsuperscript{61}

Linked to the ‘fruits of the Baconian and Newtonian Revolutions’, improvement enabled the reconceptualization of the natural world as not just a given set of material conditions, but an ‘enormous unrealised opportunity’, which could be manipulated for man’s advantage.\textsuperscript{62}

This new instrumentalised vision of natural resources, capable of being employed for private gain required a firm justification. New kinds of information about the nation and its constituent parts, in the forms of surveys, maps, chorographies and itineraries facilitated comparison and speculation through which improvements in the nation could be envisaged.\textsuperscript{63}

The improvement of individual locales and regions was couched in terms of what that improvement might bring to the nation as a whole. Local soil fertility was important. It was an early modern commonplace to consider the fertility of the soil in relation to the prosperity of the nation, and thus improvements in fertility in one area would bring a general

\begin{itemize}
\item \textsuperscript{58} Jonas Moore, \textit{The history or narrative of the great level of the fens}, called Bedford level with a large map of the said level, as drained, surveyed, & described by Sir Jonas Moore Knight, His late Majesties Surveyor-General of his ordnance (London, 1685), p. 80; Frances Wilmoth has cast doubt on the authorship of the poem from which these lines are taken. It is almost certainly not by Jonas Moore himself. See Frances Wilmoth, \textit{Sir Jonas Moore: Practical Mathematics and Restoration Science} (Woodbridge: Boydell Press, 1993), p. 104n.
\item \textsuperscript{59} Paul Slack, \textit{From Reformation to Improvement: Public Welfare in Early Modern England} (Oxford: Oxford University Press, 1999), pp. 69–70.
\item \textsuperscript{60} Daniel Defoe, \textit{An essay on projects} (London, 1697), pp. 10–11.
\item \textsuperscript{61} McRae, ‘Husbandry manuals’, p. 35.
\item \textsuperscript{63} Slack, \textit{Invention of Improvement}, pp. 15–16.
\end{itemize}
improvement to all. The reverse was also true: those who failed to improve their land held the nation back. The non-improving farmer was compared to the proverbial dog in a manger, and considered ‘better lost than had’, denigrated as

THE cankred Carle in fertil soyle,
which doth much ground possesse,
And suffereth not the Plough-mans toile,
his lande to take and dresse.
Nor yet himselfe conuert the same,
vnto his Countries vse,
Deserueth well the shamefull name,
of common-weales abuse.

The lone farmer then became a crucial component in the development of the nation. This developed ideology of improvement posited that ‘the interests of the commonwealth were advanced by the individual desires of its members’. John Smyth of Nibley believed all manner of soils were improvable and made it his duty to ensure that farmers on the Berkeley estate were kept abreast with new agricultural techniques, including floating, marling and salting grounds. In his ‘improved’ version of his earlier English Improver, Walter Blith offered ‘grossly optimistic schemes for national reformation through quantification of all manner of behaviour and resources’. A year later in 1653, Cressy Dymock proposed a universal farm plan to effect these changes and raise national production. This was a world-

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66 McRae, ‘Husbandry manuals’, p. 56.
view in which ‘even the lowliest husbandman has a duty to the commonwealth to improve his land and himself’.  

With every scrap of turf potentially able to be accounted for, the large areas of wet and inundated ground came under the improver’s scrutiny. The idea that semi-permanent flooding was wasting part of England’s natural resource endowment was long standing, and permeated aspects of political life. During a debate over the Union with Scotland, government supporters used flooded land as an example of England’s untapped capacity to receive new immigrants. Members opposed to the Union argued that uniting with Scotland would lead to an increase in Scottish immigration, and a subsequent ‘surcharge of people’. Speaking in a Commons debate on 17 February 1607, four weeks after the 1607 Bristol Channel floods, and between intermittent discussions of a Bill for Fen Drainage, government supporters argued that there was ‘no evident Token of Surcharge of People in this Kingdom’, as there remained ‘Many great Wastes, surrounded Grounds, [and] great Fishing[s]’ that could be improved to sustain more people.

Meadows and seasonally inundated lands have historically been at the cutting edge of improvement. As chapter one showed, these lands were recognised for their fertility that came from non-intensive land management, such as the use of seasonal floods to provide nutrients and raise soil temperatures. But too much flooding tipped the balance dramatically the other way, and constantly sodden ground was unable to support the demands of agriculture. Thus, lands that were most flooded were targeted first, so as to turn ‘drowned’ fens into moist, fertile ground, with improvers targeting the worst land, rather than already-functioning arable.

These were the low hanging fruit for would-be improvers, lands on which significant gains could be made with the investment of moderate amounts of capital and labour. Meadows were turned over to arable as improvers widened their vision. Sir John Banks epitomised these

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70 McRae, ‘Husbandry manuals’, p. 45.
73 Ambrosoli, The wild and the sown, p. 288.
attitudes in 1637, in his report ‘concerning the Employing all the Poor and Idle Persons of the Nation, and concerning the Commons’. Banks argued that

the greatest part of the Kingdome Consists in Commons, Fields, Moores, Wastes, and Fenns, producing for the most part a brood, of the most Idle people of the Kingdome, and by Consequence the most beggarly. ... The Worst sort of Horses, Cowes and Sheep, and in these places you shall find few or no Manufactures at all. 74

By the end of the century, authors could claim that ‘the more Land we recover, and improve, the richer we grow’. Drowned land necessarily impeded the Commonwealtlh: ‘that Soil which is under Water, is lost to the Commonwealth, that Tyrant Element doing here no manner of Good’. 75

Watercourses themselves have been cast as ‘agents of improvement’ across Europe in the medieval and early modern periods, a recognition of the gains to be made from periodically wet grounds, as well as the symbolic capital of ‘taming’ marshes and wetlands. 76 Dugdale reported that, ‘for the honour of his Kingdome,’ James I ‘would not any longer suffer these Countries to be abandoned to the will of the waters, nor let them lye waste and unprofitable’. 77

The improvement of rivers for navigation became a political endeavour as schemes

74 John Banks, *Sir John Banks his Report to KING CHARLES concerning the Employing all the Poor and Idle Persons of the Nation, and concerning the Commons, Anno 1637, when he was Attorney Generall*. (London, 1637).

75 Person of honour, *Angliae tutamen, or, The safety of England being an account of the banks, lotteries, mines, diving, draining, lifting, and other engines, and many pernicious projects now on foot tending to the destruction of trade and commerce, and the impoverishing this realm: with reflections thereon of great import to all sorts of people / by a person of honour*. (London, 1695), p. 29.


increasingly required acts of parliament, and stimulated a small pamphlet literature. Authors of improving literature were preoccupied with ‘excess’ water, and they used the wetness of ground as a means to rank it ‘according to its potential for improvement,’ and to ascertain exactly which improvements could be undertaken. In his Systema Agriculturae, John Worlidge was one of the first authors to see excess water not as a necessary condition of a particular environment, but as a variable that might be altered for gains in output. Likewise, warth lands were ripe for improvement. John Smyth sought to improve the warth grounds of Slimbridge, Gloucestershire, believing them to be worth less than half their improvable value, and harbouring poor, idle and alcohol-dependent cottagers. The profusion of artificially ‘watered’ meadows from the seventeenth century was once seen as the result of a technological innovation, yet is now recognised that it ‘did not come from any sudden realisation that floating increased grass production, but arose instead from particular economic circumstances’, as part of a wide ‘range of improvements’ farmers might introduce.

The benefits of ‘watering’ land through managed flooding had long been known (chapter 1), yet seventeenth-century improvers sought to introduce ever closer control over how and exactly what water was applied to their land. Their attitudes towards water content, distribution and quality can be viewed as the germ of later, eighteenth-century attitudes to farming which envisaged the environment of the farm as a ‘closed entity in which the accomplished experimental farmer could manage that perfect circulation of materials’. Basic experimental techniques were used, such as ‘stirring the mud with cole rakes in the river’, which Peter Smith claimed ‘will raise a rich floud at any time with lesse labour then is

83 Warde, ‘The Environmental History of Pre-industrial Agriculture’, p. 89.
imagined’.\(^{84}\) John Beale and Gabriel Plattes discussed the modification of ‘hungry’ water, by ‘gathering it into ponds & then putrifying, or impregnating it for fertility’.\(^{85}\) Samuel Hartlib praised Cressy Dymock’s watering schemes as of ‘unspeakable benefit to National Husbandry’ as they could ‘water the Lands as it were a garden.’\(^{86}\) Enthusiasm for improvements through water management grew in the mid-century to such levels that Beale could claim that ‘all our gentry, & especially our Counsellors of lawe & evry farmer, all over this Countrey, is most busy & expert in takeing in all the possible helpes of water for improvements of pasture’.\(^{87}\)

Whilst these improving agricultural writers and farmers were concerned with modifying and altering water inputs on their land, prefiguring later agronomic developments in the eighteenth century, they retained a significant social dimension in their improvement strategies that linked their efforts in a ‘wider chain of consequence’.\(^{88}\) For Samuel Hartlib, the cultivation of soil was linked to the cultivation of men’s souls.\(^{89}\) This idea stretched back to the middle ages, when landscape reclamation was ‘seen as a metaphor for improving souls’.\(^{90}\) For ‘E.G.’, the author of \textit{Wast Land’s Improvement} (1653), improving forests, ‘Fenny-Grounds and Wastlands’ tended not only to the ‘enriching of the Common-wealth in generall’, but to the ‘prevention of robbery and Beggary’, as well as the raising of a stock to eliminate the need to fund the army and navy through excise and taxation, and paying off parts of the ‘Nations Debts and Obligations’.\(^{91}\) The idea of improving people along with land belied the colonial dynamic of improvement. The apportionment, clearing and settlement of ‘waste’

ground in Lancashire has been characterised as colonial. The perspective of domestic improvers was similar to that of colonial settlers, in that failure to exploit the landscape was seen as an offence, and that those that lived on such unexploited lands were therefore deficient, be them inhabitants of English fens or ‘New World’ forests.

Claimed one drainage enthusiast, ‘ariseth chiefly from the Labour and industry of Men, and by neglect thereof followeth poverty and shame.’ Walter Blith made allusions to the relationship between improvement and colonialism, arguing that

the Improvement, or Advancement of the fruits and profits of the Earth by Ingenuity, is little less than an addition of a new world; for what is gained hereby either above the natural fruitfulness of the Earth, or else by reduction of that which is destroyed, or impoverished from his natural fruitfulness, to greater fertillity, is a clear augmentation or Addition to the Common-wealth.

Improvement not only added to the productive capacity of the nation, it also provided a means by which claims to property ownership could be exerted and defined. In European colonies, land subject to ‘improvement’ could be subject to much more robust claims of ownership than ‘unimproved’ land, which led to some of the most dramatic improvement schemes taking place in the ‘New World’ and Ireland. Improvement via surveying, drainage

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93 Hoyle, ‘Custom, Improvement and Anti-Improvement’, p. 17.


95 Walter Blith, *The English improver improved, or, The syrvey of hvsbandry syrveyed discovering the improueableness of all lands some to be under a double and treble, others under a five or six fould, and many under a tenn fould, yea, some under a twenty fould improvement / by Walter Blith ... ; all clearely demonstrated from principles of reason, ingenuity, and late but most real experiences and held forth at an inconsiderable charge to the profits accrewing thereby, under six peeces of improvement ...* (London, 1653), p. 4. This is similar to language used by the French monarchy in 1639, where a declaration on the drainage of marshland stated that it would enrich the Crown more than an entire Indian empire. Raphaël Morera, ‘La politique hydraulique des rois de France au XVII siècle’. Des constructions d’emblèmes’, *Hypothèses* (2004), pp. 49–60, p. 55.

and enclosure allowed for the realisation of a particular concept of property over territory. Recent research into the nature of the law in late-medieval and early modern England has emphasised law as ‘a quality that can inhabit physical stuff, as well as legal treatises and social practices’.97 Objects and spaces then contain and constitute part of the law. Watery processes on ‘drowned lands’ facilitated older, medieval concepts of property in which rights to or in land were exercised over it. Such conceptions of property limited ‘unitary interest’, which was applied only to goods and chattels, ‘things that were vulnerable to all interferences in a way that land was not.’98 More ‘Roman’ conceptions of property implied ownership of a thing in itself and conflated the right to something with the thing itself. As flooding changed the nature of activity that could take place on land, and changed the utility of intertidal land at different points in the year (or even day), it would be difficult to exercise a hard, exclusive conception of property here. Yet the definition of ‘property’ shifted in the sixteenth century, and lawyers applied the definitions of property that had previously applied to goods and chattels to land, facilitating more discrete rights of ownership.99 Wet land that provided a multitude of products and opportunities, from pasture grounds to reed beds, and that was subject to regular variations, was not well attuned to such a conception of property. Floods also hindered practises of demarcating private land. Gervase Markham instructed would-be enclosers to ensure that their double quick-set white-thorne and black-thorne hedges ‘stand free from inundation’ so that they might grow swiftly and healthily.100 Double quick-set hedges have been conceptualised as forms of ‘organic barbed wire’ that served to ‘hedge out the poor’.101 At the fundamental ecological level, poorly drained and flooded land could not sustain the natural technology of the hedge, physical boundaries could not be installed, and restricted use-

100 Gervase Markham, The second booke of the English husbandman (London, 1614), p. 73.
right private property could not be adequately demarcated. Improvement schemes, such as drainage and enclosure could then be used to impose the ecological and the legal conditions for new conceptions of private property.

The historiography of improvement has, until relatively recently, viewed improvement positively. Some authors have accepted the rhetoric of improvement, and characterised the drainage schemes of Lancashire and eastern England as positive and necessary for economic growth, prefiguring the agricultural and industrial revolutions.102 Joan Thirsk offered an equivocal picture of improving schemes, viewing proto-industrial schemes very positively, and drainage as a problem during Charles I’s reign in particular, but unproblematic both before and afterwards.103 In contrast, more recently Richard Hoyle has argued that drainage on the Crown estates ‘meant dispossession and the destruction of local economies’ rather than any universal wealth creation, and that ‘to speak of drainage and clearance as “progressive economic activities” is to share the early modern prejudice against the pastoral economies of forests and fens.’104

Hoyle’s perspective is most valid in the context of flood-related disputes. The practical manifestation of ‘improvement’ on common land was apportionment and enclosure.105 This could have diverse social consequences, but usually meant that those at the very base of the social hierarchy lost out most. Universal opposition to improvement and enclosure could not be guaranteed, as ‘landowners and tenants might support enclosure when

it suited them, while simultaneously opposing such changes when their rights were threatened.\textsuperscript{106} The more substantial tenants in broadly open agricultural systems were able to benefit often as much as their landlords from capital investment and improvements on the lands they rented.\textsuperscript{107} On the Weald Moors (Shropshire), drainage and improvement was undertaken with the consensus of broad vertical alignments between landlord and tenant, causing horizontal friction between previously intercommoning villages, whilst having the most deleterious effects on the smallest farmers and cottagers who relied on common land.\textsuperscript{108} The smallest farmers lost out in west Lancashire, where the apportionment of common land into private enclosures came with a costly obligation to hedge and drain land which many could not sustain, and thus surrendered their rights to.\textsuperscript{109} Whilst some few improvers, such as the north Warwickshire circle of Dugdale and Blith, sought to find ways to mitigate the negative effects of enclosure on their tenants,\textsuperscript{110} improvement was generally a zero-sum game in which tenants were bound to lose where their landlords stood to gain.

Despite the rhetoric of ‘commonwealth’ and public utility, seventeenth-century improvement was ‘driven not by the needs of the commonwealth but by the opportunities for private gain which it allowed’.\textsuperscript{111} Public mistrust of ‘improvement projects’ was particularly acute under Charles I, whose attitude towards improvement had ‘wholly lost touch with real life’.\textsuperscript{112} Fenlanders complained that the drainage undertaken on their land was but a ‘Court project’, and that ‘such as disliked and complained, was [sic.] fined and imprisoned’.\textsuperscript{113} Crown interventions in projects, particularly those under Charles, ‘had given improvement a bad


\textsuperscript{107} Soens, ‘Floods and money’, p. 355.


\textsuperscript{110} Thirsk, ‘The Fashioning of the Tudor-Stuart Gentry’, p. 79.

\textsuperscript{111} Hoyle, ‘Custom, Improvement and Anti-Improvement’, p. 2.

\textsuperscript{112} Thirsk, ‘The Crown as projector on its own estates’, p. 346.

\textsuperscript{113} Anon., \textit{The state of the case concerning the late Earl of Lindseys drayning the Fennes between Borne, Boston, and Lincolne} (London, 1650), p. 5.
name."  

Some of the patents issued for improvement were extremely favourable for those that held them. Robert Chivers was granted a patent in 1637, which was renewed 1639, to improve land to grow hops, and was allowed to improve any man’s land, doling out profits to himself, the crown and the owner in thirds, disregarding prior owners’ property rights.  

It is in the context of this pattern of the long-term use and valuing of low, flood-liable, marshy ground, the medium-term decline between the later fourteenth and early sixteenth century, and the rise of conceptions of improvement that we must view the development of the attitudes that are expressed in the Statutes of Sewers.

**Flooding and the Statutes of Sewers**

Over the course of a century, parliament passed five sewers acts that attempted to respond to this changed situation on England’s coasts and marshes. The origins of the Sewers Act stretch back to 1258, when Henry de Bathe was given a commission to settle disputes between jurors on Romney Marsh and see that defences ensured it was free from summer inundation. This commission drew on local administrative structures of much older, but uncertain origins. In some areas, these pre-statutory flood defence and water management structures were highly developed, particularly within and between intercommoning wetland communities in Lincolnshire. The fifteenth and early sixteenth-century acts were reactive to flood events that endangered lives and livelihoods. In 1427, the preamble of the first statute of sewers stated it was necessary ‘considering the great Damage and Losses which now late be happened by the great Inundation of Waters in divers Parts of the Realm’. In 1439 the act was continued, with legislators noting damage sustained ‘by the great rising of Water of the Sea... to the great Hindrance of the said Realm’. In 1472 rising water threatened to cause ‘many great

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114 Slack, *The Invention of Improvement*, p. 61.
115 Hoyle, ‘Custom, Improvement and Anti-Improvement’, pp. 20–21. Chivers was never able to use his patent due to the outbreak of war.
118 6 Hen. VI, c. 5, *Statutes*, ii, 236.
119 Largely similar language is found in the 1444 act. 18 Hen. VI, c. 10, 23 Hen. VI, c. 8 *Statutes*, ii, p. 309, p. 334.
Mischiefs’ as well as ‘the Decrease of the Sustenance and Livelyhood of Holy Church, as of other the King’s liege People... and [the] utter undoing of them’. The 1488 statute repeated this concern with a decrease in royal and church revenues, adding that in Somerset and Gloucestershire, as well as elsewhere, ‘dyvers londes and tenements in greate quantite [had] been surrounded and destroied’, a reference to the 1483 Severn flooding, known as the ‘Duke of Buckingham’s water’. These acts were then concerned with avoiding the loss of revenues. Their stated rationale was then to defend vulnerable coastal and riverine areas, thus protecting the people and their taxable and tithable production there.

Cromwell’s complete redraft of the Sewers act in 1531 changed this preservative focus, shifting from a desire to stop the loss of life and livelihood, to the beginnings of a policy to increase the wealth of the state and subject. It is a long and significant act, described by Stanford Lehmberg as ‘the most important piece of economic legislation’ of its parliamentary session. It opened by stating a desire to further national economic output. There was ‘nothing erthly so highlye weyeng’ on Henry VIII than ‘the avauncynge of the common profitte welthe and commoditie of this his Realme’. Flood-liable land was intrinsic to this economic development. The ‘marsshe groundes and other lowe places’ that had been ‘through politik wisedome wonne and made profitable for the greate common welth of this Realme’ were subject to the ‘outragieus flouyng surges and course of the See’. The statute sought to reduce these floods as a way of ‘avauncyng... the common profitte’. Medieval reverence for marshland was enshrined in legislation, alongside a desire to increase agricultural production. It sought to protect lowlands and marshes, but also to ‘avaunce’ profit. The act was thus concerned with an early form of improvement (that of increasing agricultural yields) cast in a national perspective, yet also preserved land that would come to be at the fore-front of later improving projects. This introduced an ambiguity that would cause significant difficulties for

121 4 Hen. VII, c. 1, Statutes, ii, p. 525  
123 Ibid., p. 155.  
124 23 Hen. VII, c. 5 Statutes, iii, p. 368.  
125 Ibid., p. 368.
improvement schemes in the later sixteenth and seventeenth centuries. Seemingly minor semantic changes came to preoccupy eminent jurists advocating either protection or improvement.

Historians have seen the 1532 act as a simple continuation and restatement of medieval statutes and customary principles, yet the change in language to one of profit and advancement is significant.\(^{126}\) It is indicative of an acquisitive attitude towards flood liable land that would come to dominate government policy across the sixteenth and seventeenth centuries. If improvement would not feature as the ‘stated intention of laws’ until the later seventeenth century, the wording of the 1532 Statute of Sewers showed definite moves in this direction.\(^{127}\) Floods were no longer seen as solely taking from the land and threatening production, they were seen as hindering the advancement of the nation. Flooding was cast ambiguously as something that might be moderated as well as something that was fundamentally threatening and should be eradicated. This attitude would bring an ideology of improvement into conflict with one of preservation that had significance and ramifications beyond England’s coastal marshes.

The ambiguities of the 1532 act caused significant constitutional issues in the later sixteenth century. Elizabeth’s government sought to increase crown revenues and were convinced that improving projects would do this. Read through improvers’ eyes, the Statue of Sewers appeared to grant powers necessary to alter England’s floodplains. By the later sixteenth and early seventeenth centuries, then, the representation of flooding was politically invested. These matters were not restricted to disputes in small, regional courts, over marginal, uninhabited patches of land. The issue of whether Commissions should protect or improve – of whether floods could be managed or vanquished – gained constitutional importance in the late sixteenth and early seventeenth century. Debates and conflicts over river improvement have been acknowledged as embodying, in microcosm, many of the constitutional issues that


dogged the Crown and Parliament in the first half of the seventeenth century. The protective
nature of the Statute of Sewers came to hold a small but important position in constitutional
debates in the first half of the seventeenth century.

The Sewers controversy stemmed from a difference in interpretation of the 1532
Statute. At its heart, the debate was over whether and when Commissioners of Sewers might
order new flood defences, and then who might be asked to pay for them. This stemmed from
ambiguity in the statute surrounding the uses of the words ‘need’ and ‘new’. Commissioners
took an oath swearing to ‘refourme repayere and amende the said walles diches bankes gutters
sewers gootes calceis bridges streames and other the premisses in all places nedefull, and the
same as often and where Ned shalbe to make newe’. Likewise they were to ‘reforme repelle
and amende and make newe frome tyme to tyme as the cases necessarie shall require in that
behalff.’ This point was made no clearer by the acts entreaty to act ‘according to the purporte
effecte wordes and trewe meanyng of the same’. In an age of improvement, exactly what
was needful and what was new was contested. As we have seen, reconceptualisations of
wetlands as missed opportunities, and brakes on the nation’s progress cast their drainage
requirement in a new light. What was necessary in 1600 was not what was necessary in 1500.
Likewise, novelty was called into question by judges and improving writers who posited that
flooded land was further from its original, ‘natural’ state than drowned land. Clive Holmes,
whose research has done so much to illuminate the political history of the Commissions of
Sewers, has attributed these disputes to Thomas Cromwell’s ‘lamentable drafting of the
statute’, and his ‘simple failure to provide an accurate translation of the previous Latin
commission’. Whilst the technical error in the drafting may well have provided the

128 Frank Sharman, ‘River improvement law in the early seventeenth century’, The Journal of Legal
129 Clive Holmes, ‘Statutory interpretation in the early seventeenth century: the courts, the council and
the commissioners of sewers’, in J. A. Guy and H. G. Beale (eds), Law and Social Change in British
130 23 Hen VIII, c. 5, Statutes, iii, pp. 369–70, emphasis added.
Peter Dear (eds), The mindful hand : inquiry and invention from the late Renaissance to early
industrialisation (Amsterdam: Edita KNAW, 2007), pp. 117–143; and below.
132 Clive Holmes, ‘G. R. Elton as a Legal Historian’, Transactions of the Royal Historical Society,
opportunity for disagreement, I argue it was the crack which under close scrutiny came to reveal important fault lines in early modern attitudes to flooding, improvement and the constitution.

Disputes began in earnest from the 1590s onwards as leading judges offered conflicting judgements and opinions on the ‘new works’ question. By the later sixteenth century, statutes, and their specific phrasing was held in much greater reverence than had previously been the case in the medieval period. No longer were law makers personally the arbiters of interpretation; Bacon reminded the King’s Bench that judges were not to bend and mould laws, but to ‘expound them faithfully and apply them properly’.\(^{133}\) The language of the statute should then be placed in a ‘framework of rules governing its interpretation’, that grew across the early modern centuries.\(^{134}\) The language of the law was then crucial, and as this ‘framework of rules’ was worked out, lawyers clashed over its meaning.

Legal opinion fell into two unequal camps. In one, a large body of court officers and crown appointees argued that the Statute of Sewers allowed the creation of new, improving works. In the other was Sir Edward Coke, who remained thoroughly sceptical. In 1598, Francis Gawdy, then a judge at the Court of Queen’s Bench, offered an opinion in a Sewers case regarding new flood defences made at the marshes of the Cambridgeshire village of Upwell (now Norfolk). The works were to be funded in part by a general contribution from anyone with an interest in the common, with failure to do so resulting in the distress and sale of commoners’ land. Using the language of improvement, Gawdy justified his decision by appealing to the ‘great advantage to many of her Majesties subjects’ that came from the ‘improvement of the whole grounds imbanked’ and the ‘improvement of a great number of Acres... heretofore much oppressed with water’.\(^{135}\) In 1602, Chief Justices Sir John Popham and Sir Edmund Anderson ruled on new gotes (artificial, often enclosed drainage channels) in

\(^{133}\) Quoted in Holmes, ‘Statutory interpretation’, pp. 108–09.


\(^{135}\) Dugdale, *History of Imbanking*, p. 352 [sic. 353].
Kesteven, Lincolnshire, declaring that ‘if they were found to be good and profitable for the safety and advantage of the Country, they might be erected by the power of the Statute’. In his opinion on the Case of the Isle of Ely (1609), Attorney General Sir Henry Hobart upped the rhetorical ante and declared that new works were essential as ‘Sewers are made and maintained for the land, and not the land for the Sewers.’ It was Lord Chancellor Ellesmere’s opinion in 1615 that any curtailing of the Commissioners’ discretionary ability to raise a tax and direct works would be ‘a great blowe... and may bring much mischeife with it’ in cases of ‘the sudden violence of [a] streame’ or ‘Sudden Inundacion of the sea’. Bacon’s rhetoric as Attorney General was similar. In 1617 he turned the argument on its head and characterised claims that new works were not permitted as ‘innovacions and disturbances’. In matters of ‘so greate consequence’ as the Commissions of Sewers, ‘necessitie doth require [new works] for the safety of the countrie’ from the ‘fury of the waters’ for the ‘salvacion of the kinge’s landes and people’. Writing later in the 1620s, Lincolnshire Commissioner and jurist Robert Callis viewed the power of the Commissions of Sewers as a ‘broad, instrumental means to improve the commonwealth’. Some even used the Statute of Sewers to characterise Henry VIII (anachronistically) as ‘the first great improver’. In the mid-century, William Killigrew...
encapsulated these views claiming that those who argued the Statute of Sewers would not afford improvement constructed Sewers laws ‘as if they were only made to mock men, to shew a publick good, & to forbid the doing of it.’

Sir Edward Coke stood out against this body of judicial opinion. Coke was said to have a ‘perpetual turbulent carriage’ against the Commissions of Sewers, among other of James’ courts and prerogatives. For Coke, the issue of new works was about more than flood defence: it contained within it challenges to custom, common law and the sovereignty of parliament. If, as other Justices had argued, new, improving works could be ordered by Commissioners, this would have meant that with the Statute of Sewers parliament had given away broad discretionary powers to a Crown appointed body, including the right to breach custom, take private property and alter the landscape. Given that Commissions were to be issued by the Lord Chancellor, and exercise their authority in the name of the monarch, the extension of the powers of Commissioners of Sewers (along with other contemporary Commissions) was then essentially an extension of the prerogative. Coke set out his position in a series of judgements, readings and case reports that offered a radically different reading of the Statute of Sewers from that which was offered by Anderson, Popham and co. His first Sewers case report, Rooke’s Case (1598) established that taxation could only be levied on those who were liable to flooding, and should be levied equally between all who had such lands. Thus nobody was to be compelled to pay if they did not hold land in danger of overflowing, and nobody could be required to pay for repairs from which they would not benefit. Coke limited discretion, noting that it should be used to discern between ‘equity and colourable glosses and pretences’, and was not intended for Commissioners ‘to do according to their wills and private affections’. In his retrospective analysis of the Case of the Isle of Ely, Coke made his definitive statement on ‘new works’. New rivers required an

144 James Spedding (ed.), The Letters and the Life of Francis Bacon Including All His Occasional Works (7 vols, London: Longmans, Green, Reader and Dyer, 1861–74), vi, p. 95
147 Ibid., pp. 1139–43.
act of Parliament – much more than just the discretionary sanction of Commissioners of Sewers – because otherwise
great inconvenience thereupon for private lucre might ensue as well as for public
damages as stopping of havens (which are the gates of the kingdom), and other
common rivers, as particular nuisance and prejudice to private men, by drowning
of their lands and inheritance.\(^{148}\)

The one area on which Coke would concede was that of ‘imminent necessity’.\(^{149}\) Coke rested his opinion on a much less oppositional characterisation of the relationship between land and water, recently termed a much ‘stricter standard of imminent necessity’ than adopted by his contemporaries.\(^{150}\) Coke was by no means soft on flooding. He rested his judgement regarding the equity of sewers rates on the possibility that ‘the rage and force of the water might be so great, that the value of the land adjoining will not serve to make the banks’.\(^{151}\) It was however Coke’s understanding of ‘new works’ that caused the difference, as it did not proceed from an \textit{a priori} assumption that they were beneficial to the Commonwealth, as improvers argued. When coupled with discretionary government, private interest would also undermine confidence in the law.\(^{152}\) In Keighley’s Case (1609), Coke argued that, ‘grounded upon great reason’, ‘\textit{salus populi est suprema lex}’. Floods that came ‘by the act of God’ and were ‘so inevitable, that by no providence or industry... [could] be prevented’ could necessitate the construction of new works and a new taxation to be levied.\(^{153}\) Here we can then see the difference between Coke’s understanding of flooding and that pushed by improving judges.

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\(^{148}\) Ibid., pp. 1141.
\(^{149}\) My reading of Coke’s judgements and opinions as being reliant on a disarticulation of improvement and the exercise of legal authority is similar to that David Chan Smith’s in \textit{Sir Edward Coke and the Reformation of the Laws}, published in November 2014. Smith examines this in the context of Coke’s project of inspiring confidence in the law, whereas I draw out the environmental conclusions from this. See Smith, \textit{Sir Edward Coke}, pp. 91–114.

\(^{150}\) Smith, \textit{Sir Edward Coke}, p. 94.

\(^{151}\) \textit{English Reports}, lxxvii, p. 209.

\(^{152}\) Smith, \textit{Sir Edward Coke}, p. 94. Such was the case with the drainage of the fens, where dispossessed fenlanders claimed that by ‘Court power, friendship, self-interest, and complements’, the drainage investors had commenced an ‘arbitrary’ ‘project’. Anon., \textit{A relation of the proceedings & causes of complaint, between the undertakers with the Earle of Lindsey, in the levell of Fenns in Lincolnshire betwixt Bourne and Kine Eae, and the owners and commoners there} (London, 1650), pp. 5–7.

\(^{153}\) \textit{English Reports}, lxxvii, p. 1137.
For Coke, floods had to be utterly extraordinary for them to justify the exercise of powers beyond those customarily granted to local Commissioners. Those that supported the aims of improvement believed that floods were doubly bad – along with endangering lives and livelihoods, floods ate away at national economic potential. By insisting on a much higher threshold of danger and damage, Coke’s judgements and readings of the Statute of Sewers acted as a brake on improvement, and pushed those seeking improvement to characterise floods as much worse than they might have otherwise. Representations of the severity of floods then became deeply politicised, for the worse that flooding was seen to be, the more power Commissioners could legitimately wield, and the more improving schemes undertaken.

Images of wild and threatening floods, and of the sea breaking into the land and endangering the subject proved potent, and made for a useful point of analogy. It was a timely and concrete, and seemingly clear-cut enough example which outspoken Parliamentarians drew upon in attempting to correct perceived abuses of the royal prerogative. Symbolically, the Statute of Sewers was important. Although it was long, detailed and thoroughly redrafted in 1531, it still enshrined the ‘lawes and customes of Romney Marsshe’ as the basis of the Commissions’ structure and their precedent.154 Allowing innovation through new works would be a denial of custom, one of the foundations of ancient constitutional thought prevalent among common law historians and parliamentarians in the early seventeenth century.155 Thus Richard Hutton and Oliver St. John used Coke’s interpretation of the Statute of Sewers in favour of John Hampden’s opposition to Ship Money, arguing that the levy should be made through an act of Parliament, and proportionate to every man’s income, as per Coke’s

154 23 Hen. VIII, c. 3, Statutes, p. 369. For Coke the confirmation of custom went even further. In his judgement in Keighley’s Case, he deemed that Commissioners were not bound by the customs of Romney Marsh, but by the customs of their own country. He argued ‘consuetudo loci est observanda’, English Reports, lxxvii, p. 1138.
judgement in The Case of the Isle of Ely. To overturn custom in such a way would be to set the monarch above the law.

Subsequently, lawyers and parliamentarians used images of waves breaking through sea walls to warn of the dangers of the expansion of the prerogative. Parliamentarians adopted environmentally charged language to express their anger with what they saw as the illegitimate extension of Charles’ prerogative during the personal rule. The prerogative was cast as a greedy and violent sea against which statute law had been built up over centuries to defend the people. St. John referred to the ‘Statute de Tallagio, and other old Laws’ as ‘the Sea-walls, and Banks, which keep the Commons from the Inundation of the Prerogative.’

Likewise, Sir John Holland referred to Charles’ actions as ‘the late Inundations of the Prerogative Royal, which have broken out, and almost overturned all our Liberties, even those which have been best and strongest fortified, the Grand Charter itself.’ Looking back on the controversy in the early 1670s, an anonymous Oxford wit jokingly referred to the attempted extensions of the prerogative as ‘Noy’s Flood’, punning on the name of Charles’ Attorney-General and promoter of controversial Ship Money, William Noy, which his successor Robert Banks was unable to keep back. Charles attempted to rebut these images in his response to Parliament’s Nineteen Propositions, continuing to draw on flood imagery. He characterised the government of England as a balance between three kinds of government, monarchy, aristocracy, and democracy. History had ensured that these three forms of government were mediated, and, like a river, ‘runne joyntly on in their proper Channell, (begetting Verdure and Fertility in the Meadows on both sides)’. Small inundations of the prerogative, or

Oliver St. John, ‘Mr. St. John’s Argument’, in Historical Collections of Private Passages of State, ii, pp. 481–544 (consulted online at <http://www.british-history.ac.uk/rushworth-papers/vol2/pp481–544> [accessed 4 August 2015]).


158 Historical Collections of Private Passages of State, iv, pp. 1–45 (consulted online at <http://www.british-history.ac.uk/rushworth-papers/vol4/pp1–45> [accessed 4 August 2015]).

159 Anthony Wood, Athenae Oxonienses: an History of all the Writers and Bishops who have had their Education in the most famous University of Oxford from 1500 to 1690 (2 vols, London, 1691–2), i, p. 507.
parliamentary sovereignty were then acceptable, so long as ‘the overflowing of either on either side raise no Deluge or Inundation.’

During the Civil Wars, floods provided a powerful trope with which to discuss politics. The ‘Anti-Projector’ claimed that the ‘overflowing corruptions’ of drainage projectors ‘did hurtfully surround the Parliament’ before the Civil War. It was then ‘good for the Commonwealth they should be drayned and meliorated’. Into the 1640s, flooding was linked to the illegitimate redistribution of property and the unbridled exercise of democracy, as competing interests in drainage disputes claimed each were ‘Levellers’. Drainage projectors had to show that land was ‘hurtfully surrounded’ to be allowed to drain it, leading to several contested declarations on the state of the fens. The Anti-Projector claimed that projectors sought to ‘make England the Level, England to be surrounded’ so as to expropriate one third of all its land, making the Undertakers ‘the true Levellers, for they created the equivocal word Level’. The draining was referred to as ‘this Levelling surrounding businesse’ by ‘grieved countrymen’. These ‘Leveller’ Undertakers sought to ‘destroy propriety, and take away Land from the owners without and against their consents.’ Later in the century, pro-drainage authors referred to sea water that flooded land as the ‘Publick Tyrant’ and the ‘Tyrant Element’. They drew on a combined environmental and political discourse that had deep roots.

Both practical experience with changes on flood-prone land, and the evolving body of thought that surrounded improvement then impacted on the ways in which lawyers and lawmakers conceptualised flooding in the seventeenth century. Flooding came to be imbued with a new political significance, which raised its profile in public discourse, both as part of a minor

162 Ibid., pp. 3, 6.
164 Anon., The humble petition of the inhabitants of the soake of Peterboro, within the county of Northampton, containing about forty townes and villages, against the undertakers there: with exceptions to their act; setting forth how and wherein they abused the Parliament by their false suggestions: and a relation of a new reviving of an old court project terribly to threaten those who oppose selfe-ended designes (London, 1650), p. 6.
165 Moore, A History or Narrative of the Great Level, p. 73; Person of Honour, Angliae Tutamen, p. 29.
constitutional *cause celebre* in the hands of Coke, and as a rhetorical trope amongst dissenting Parliamentarians. By the seventeenth century, floods were more politicised than they had ever been before. The following sections analyse how politicised images of flooding were received and negotiated in schemes designed to alter and ultimately ‘improve’ flooded land.

**Improving flooding I: surrounded grounds**

Developments in crown projects in the later sixteenth and early seventeenth century drew on the distinction between flooding as a condition of life in low grounds, something to combat and prevent, and flooding as something holding back economic development, as a problem to be solved and fixed. Two particular schemes in lowland and coastal zones rested in part on the aggressive characterisation of floods as threatening to progress and existence – commissions for concealed coastal reclamations, and drainage projects. Both of these projects had their roots in the later sixteenth century, were continued by James and Charles, caused political problems in the mid-century, and were continued at the Restoration. The former continues today.

In modern Britain, the Crown asserts a claim to the foreshore, unless it can be proven that rights to the foreshore have been specifically granted to individuals. This means that all land between high and low tidal markers along Britain’s coast is claimed by the Crown, unless specifically excepted. However, this has not always been the case. The first time that the English crown asserted a claim on these ‘rights of the foreshore’, was in the 1570s. In 1569, mathematician, engineer and astronomer Sir Thomas Digges wrote ‘Arguments prooving the Queenes Majesties propertye in the Sea Landes, and salt shores thereof’, a treatise expounding the Crown’s claim to all littoral land. Digges argued that

\[\text{so farre ... as the sea hath by sutche his naturall course flowde: so farre extendeth the princes land, the which yf yt bee at eny time amplifyed and incresed by the withdrawinge of the sea, the prince is to receyve the benifyte therof}.\]

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Digges based his claims on Henry de Bracton, the much-vaunted thirteenth-century ‘father’ of English law. Bracton had in fact argued that shores, like the sea, air and water, were common to all rather than property of the crown.\textsuperscript{167} Despite this, Digges’ interpretation gained favour with Lord Burghley, and retained it under James I and Charles I.\textsuperscript{168} Digges had a personal interest in positing royal rights to reclaimed land – he was a land searcher, seeking out concealed reclamations under a crown patent. Only marine islands were subject to this kind of scrutiny. Islands in non-tidal rivers, such as the ‘bitmays’ of the Wensum in Norwich, and other lands "won out of the river" there, were granted to municipal river surveyors from the mid-1560s onwards.\textsuperscript{169} Digges and others after him were granted the authority to commission surveys to discover any land newly ‘won’ or inned from the sea. Once that land was discovered its present occupiers would be invited to compound for it (in which case the searcher would receive a cash sum), or would be entitled to a share of it once it had been confiscated and legally established as the property of the Crown.\textsuperscript{170} Patents were issued specifically ‘for the increase of his Majesties’s Revenue and the generall good of the Country’.\textsuperscript{171} This was classic ‘rent-seeking’ behaviour by Elizabeth, James and most significantly Charles.\textsuperscript{172}

Tudor and Stuart monarchs had good reason to seek out these lands. As demonstrated in chapter one, coastal marshlands were put to a variety of intensive and extensive agricultural uses and could yield significant profits if suitably managed. Whilst Samuel Hartlib’s estimation that in general such schemes could encompass ‘many thousand thousands of Acres’, ‘that may proove worth to bee millions’ was overly optimistic, significant profit could


\textsuperscript{168} Thirsk, ‘The Crown as Projector on its Own Estates’, p. 313.


\textsuperscript{170} Thirsk, ‘The Crown as Projector on its Own Estates’, p. 313, p. 322.

\textsuperscript{171} The National Archives [hereafter TNA] DL 44/1129, ‘Enquiry as to concealed lands and lands reclaimed from the sea in Lincolnshire and Cambridgeshire, 9 Chas I. 1633–1634’.

be obtained in specific schemes. Land arising from the outermost Humber estuary in 1666 demonstrates this. As the intertidal sand bank of Sunk Island began (in a phrase charged with improving zeal) to ‘maintain its ground against the insult of the Waves’, the Crown laid claim to it, leasing it to the Gilby family who erected banks and reclaimed the land. Within two years 3,500 acres (1,410 ha) of ‘drowned land’ was leased for five pounds per annum, fifty years later an area nine miles (14.5km) in circumference yielded £800 a year, and by the 1790s it sustained a community of farmers large enough to support a chapel, and brought in annual rents of £900. In the early eighteenth century scores of labourers were employed working the sea walls, rendering it ‘impregnable against all future attacks of the Sea’, and defending the ‘very fat and fertile Soil’, ‘innumerable’ of the finest rabbits in England, cows, sheep, horses and ‘great plenty of Wild Foul’. Inning land was not always this successful, as evidenced by the reclamation attempts of Charles II’s physician, William Quatermain, who had a Crown lease for land arising at Gatcombe Haven near Portsmouth in the mid-1660s. Quatermain had ‘been att great charge & expenses in gayning & improving the Lands’, yet in 1664 they were flooded by the sea. In recompense for their troubles, Quatermain and his partner were granted a longer lease and reduced rent on any land they re-embanked from the sea. Despite this setback, the lands were still profitable for the Crown in the long run, and by the later eighteenth century Gatcombe Haven was home to a 300-acre farm worth more than £100 per annum, along with extensive saltworks.

177 Chamberlayne, ‘Sunk Island in Humber’, p. 1015–16.
179 TNA SP 44/16 f.277, ‘Warrant for a grant to Dr. William Quatremaine and Richard Alchorne, of 300 acres of land lately overflowed by the sea, called Gatcomb Haven, near Portsmouth’.
These potentially lucrative, but uncertain ‘surrounded grounds’, later termed ‘*Maritima incrimenta*’, were of particular concern in Lincolnshire, where in 1612 it was alleged that there were 55,000 acres (22,260 ha), and that their proper identification and apportionment might be worth £20,000 to the Crown.\(^{181}\) Longstanding and acrimonious disputes were also begun in Gloucestershire, over lands that had arisen from the tidal Severn estuary.\(^{182}\) What characterised these landscapes and others like them was their constant change and flux. The high tidal ranges of the Wash (6.5 m) and the Severn estuary (14.8 m), coupled with their relatively high sediment loads mean that alluvion and avulsion are constantly occurring. The winning or losing of ‘inned’ or ‘surrounded’ grounds might then be for the long or short term, depending on the vicissitudes of fluvial, estuarine and marine processes.

The attitudes of the Exchequer and the public at large to these schemes were understandably quite different. Successive governments saw surrounded grounds as a way to increase Crown revenue in an era of expensive foreign military engagements and inadequate household finances. Projects for monetising the appearance of surrounded grounds were promoted by the government during periods of Parliamentary hiatus in James’ reign. In 1613 ‘surrounded grounds’ were included in a list of ‘additions by projects likely to prove well’.\(^{183}\) With the brief ‘Addled Parliament’ of 1614 obstinately refusing to discuss funds for the Crown, the Council again turned to prerogative projects and surrounded grounds for fundraising.\(^{184}\) In 1615, Lord Chancellor Sir Julius Caesar urged that the Council push ahead with these previously ‘foreslowed’ plans that would ‘bring the King relief’.\(^{185}\) Yet their exploitative nature made these projects unpopular. At the same Privy Council meeting in 1615, the Earl of Exeter urged the King not to act on these plans without popular consent, and to call a parliament to redress the people’s grievances, chief among them ‘grants offensive, especially those of surrounded grounds, which he knew to be very grievous.’\(^{186}\) When surrounded

\(^{181}\) Ibid., p. 54; Spedding (ed.), *Bacon*, iv, p. 317.

\(^{182}\) See below.

\(^{183}\) Ibid., *Bacon*, iv, p. 360.


\(^{185}\) Ibid., *Bacon*, v, p. 205.

\(^{186}\) Ibid., v, p. 203.
grounds were discussed in Parliament, Coke railed against them, ranking the concealment projector as one of six types of men that never prosper, along with ‘Alchimists, Monopolists, Promoters, Concealer[s], [and] Depopulator[s]’.  

When conducting searches for concealed surrounded grounds, Crown patentees brought improving visions of flooding to bear on landscapes that, under local stewardship, were not often conceptualised in this way. If land could be shown to have changed from drowned to dry, it might be taken by the searcher, regardless of whether landscape change might be cyclical or uneven or whether gains and losses were in fact temporary. The idea of improved wet ground posited that land was essentially dry and water wet, leaving little room for nuance. Intertidal land can today be classed as and ‘ecotone’, a site in which two biomes meet, making them neither marine nor terrestrial, neither water nor land. However, land searchers had to be able to show that the land they pursued was indeed newly ‘won’, and not simply the littoral, which involved establishing its recent reclamation, that the area was distinct from the sea, and that any flooding that took place was an aberration. Searchers of surrounded grounds sought to impose a linear narrative and order into an uncertain process of landscape change as a means of justifying expropriation. They required a narrative that began with land being flooded, and progressed to land being dry, imposing definite ontological categories onto sea and land.

Nicholas Blomley has described legal attempts to ‘simplify’ bodies of water through ‘nomothetic’ acts of viewing and description, which apply general, relatable forms of measurement, to produce images of discernible, ‘discrete objects’. The behaviours of these water bodies are often unpredictable, and non-linear, making them ‘idiographic’: ‘irreducibly specific’ phenomena that undermine the ‘crucial legal distinction’ between land and water. Similar to the way in which James C. Scott has characterised the modern state’s ways of

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187 Commons Journal, i, p. 533.
‘seeing’ nature and space, these views of intertidal land required ‘a narrowing of vision’.190 There was then an essential incompatibility between visions of property and land-occupancy that external state agents sought to impose on periodically flooded land, and the way that land and water interacted and behaved. ‘Idiographic’ environments came into contact with ‘narrowed’, ‘nomothetic’ visions of order, which caused disputes between the habitual users of these sites, and those who sought to define, demarcate and monetise them.

Searching itself was conducted through a series of witness interviews, and if those interviews were successful, the suits commenced by land searchers were also evidenced by the oral testimony of witnesses. In both the interrogatories and local inhabitants’ responses it is possible to see conflicting views of land-water interaction, how they were put in service of royal financial necessity and how they were resisted and negotiated at a local level.

Actors seeking to expropriate intertidal and coastal marshlands attempted to portray them as newly and imperfectly won, threatened by the sea and in need of Crown-backed reclamation. In response, seeking to demonstrate their long usage of these areas, local land users emphasised the utility and fertility of marshland. In 1616 at Awre in Gloucestershire, common intertidal warth land was expropriated by the local manorial lord and rented out privately. Having failed to regain the land in a suit in Chancery, the parishioners set about ensuring that the new lessee of the land, Richard Wytt paid local taxes on it. Wytt’s labourers claimed that they had improved the land from ‘barren wast wouse dirt & water to dry and firme land fytt to carry corne & grasse’.191 The parishioners of Awre disputed this, claiming to have always paid tithes on this ‘firme land & good ground’.192 Local farmer John Bullock testified before the local diocesan court that he had ‘travelled div[er]s[e] tymes over the said ground [and] hath seene greate store of cattel as horses mares coltes shepe geese & piggs goe & depasture’ there.193 For the people of Awre, there was no contradiction between good

190 Scott, Seeing Like a State, p. 11.
pasture ground and somewhere often overflown. Forty-six year old William Coxe testified that the land in question was ‘very often ouflowen ... at many highe springs or fludds’, yet it remained ‘firme land & not barren’, contrary to claims by Richard Wytt.\textsuperscript{194} Land near Gosberkirk in Lincolnshire was viewed similarly. There was no contradiction between firm, dry land, and land overflowed with the sea here, with inhabitants describing land that was ‘firme and left hard and drye by and from the sea ... [s]aving that they are at ev[er]y change and full of the moone subject to the ouflowing of the saltwater’.\textsuperscript{195} In 1607, the inhabitants of Gedney, Lincolnshire refused requests from prospecting surveyors to estimate the amount of marsh land used for pasturage on the seaward edge of their parish, due to the frequency of its inundation by the tides. They claimed ‘the numbringe of the acres is a verie uncertaine thinge for us to doe for there wilbe some tymes a hundrethe acres of marsh grounde: and within three howers space the best of it wilbe overflowed with the sea above six foote deepe.’\textsuperscript{196}

Salt making required continual inundation by the sea to function. Rather than being a new innovation that took benefit away from the crown, saltmaking required continual adaptation to a moving coastline. In 1617 ninety year old William Perkyn of Gosberkirk invoked this continued interaction with the littoral when he deposed that ‘the salt boylers’ of Surfleet Marsh ‘did ffolowe the Sea for makinge of theire salt hills & fflores, after the sea departed ffrom them’.\textsuperscript{197} These personal, local testimonies convey a sense of continued communal adaptation to changing and challenging environments, utilising marine processes, and not cowering from the rage of a violent sea.

\textsuperscript{195} TNA E134/6 Jas1/East34, ‘Exchequer: King’s Remembrancer: Depositions taken by Commission. James I. ? v. ?: Right and title to lands gained from the sea, lying between Surfleet and Gosberkerk, being saltmarsh, &amp;c. Meets and bounds. Right of common. Survey. [The names of Thos. Burton and Zachary his son, Thos. Lord Rosse, John Death, Henry his son, Launct. Burton, Sir Richard Ogle, Mr. Brownlow, Sir Edward Heron, tenants thereof, inhabitants of Surfleet, tenants thereof, and Sir - Phillipp, of Rye, knight, are mentioned.]: Lincoln. 1607’
\textsuperscript{196} Thirsk, \textit{Fenland Farming}, p. 17.
The attitudes of some coastal inhabitants was the source of significant royal frustration. In April 1617 the Privy Council declared that the more complete embankment of marshland in Norfolk was necessary ‘for the preventinge of soe greate a calamytie which the ignorant multitude... will never forsee untill they swyme in the sea’.\textsuperscript{198} The 1633/4 Lincolnshire and Cambridge commissioners were guided by a warrant that stated that tidally inundated lands should be sought out and ‘improved, they nowe yeildinge little or noe proffitt at all by reason they are soe overflowen wth the said Salt and ffreshe waters.’\textsuperscript{199} The inhabitants of Surfleet were asked to recount ‘with what hazard and difficulty’ were animals kept on Moulton Common, and ‘Allsoe whether were not divers of the said Cattle and sheepe divers yeares drowned, and lost uppon or from the said Marsh by casualty of the Sea?’\textsuperscript{200} Into the eighteenth century, patents still proclaimed that land won from the sea illicitly must have been ‘wast or direlict Lands’.\textsuperscript{201}

The most rapacious searchers would attempt to use any precedent of tidal inundation in an attempt to force a suit. If marshes could be established to have previously fallen on the wrong side of a land-sea dichotomy, then they became vulnerable. In 1617 Surfleet residents were asked whether marshland they pastured their cattle on was ever ‘Sea and most comonly overrun wth the Sea yea or noe’\textsuperscript{202} In 1636 the inhabitants of Moulton, Lincolnshire, were interrogated as to the nature of the tidal regime on their marsh common. Among fifteen interrogatories administered in an exchequer suit was the question

doe you know or can depose that before the said Imbanquing the flow of the sea uppe the said River of Wolland als Welland did at some tydes, and at what tydes, overflow all the said marsh uppe unto the said old sea Bancke, how oft in every

\textsuperscript{198} APC 35 1616–17, p. 231
\textsuperscript{199} TNA DL44/1129, ‘Enquiry as to concealed lands and lands reclaimed from the sea in Lincolnshire and Cambridgeshire. 9 Chas I. 1633–1634’.
\textsuperscript{201} TNA DL44/1272, ‘Survey of salt-marshes on the coast, left by the retreat of the sea. Lincolnshire’.
\textsuperscript{202} TNA E134/15Jas1/Trin3, ‘Sir Edwd. Heron, Knt. v. Robt. Obrey et al.’
moneth, or in every yeare did the said flow of the sea soe over flow the said marsh
allsoe what part thereof is or even hath beene within your memorye overflowed
at ordinary tydes and what part is or ever hath beene within your memory
overflowed at ordinary tydes and what thereof at ordinarye springe tydes?203

Responding to this question, sixty-four year old husbandman of Holbeach, Thomas Burnett,
recalled that

at certaine springe tydes aboute thrice in a yeare the Sea did flowe upon the said
Marsh unto the old sea-bank but not every Month. And hee saith that the ordinary
Neupe Tydes neyther doth overflowe ye said Marsh nor the Sands adjoyneing,
but at certaine Springe-Tydes it doth outlowe as aforesaid.204

Such testimony, showing that tidal inundation was uncommon and did not hinder the use of
the marshes could prove valuable as it jarred with the searcher’s conceptualisation of these
lands as marginal, recently part of the sea and thus property of the crown and ripe for
improvement.

In contrast to portraits of the sea as having recently eaten up land or threatened
costlines, longer term, historical, communal and ritual interactions with the sea were stressed
by coastal marshland users. Newly won land was assumed to be extra-parochial.
Commissioners assumed the novelty of ‘new’ land in Lincolnshire and Cambridgeshire in
1633/4 by asking which parishes the supposed surrounded grounds were ‘Butted and
Bounded’ with.205 Three years later searchers had a similar remit, to find new land ‘without
the pambulacon limittis, or bounds of any Parrish’.206 Richard Sickleprize of Surfleet, a
yeoman aged 73, giving evidence for the town of Surfleet’s right to use marshland revealed
how parishioners had historically performed rogationtide perambulations around the
saltmarsh. Ritual demarcation at rogationtide made a ‘powerful statement of communal

204 Ibid.
205 TNA DL44/1129, ‘Enquiry as to concealed lands and lands reclaimed from the sea in Lincolnshire
and Cambridgeshire. 9 Chas I. 1633–1634’.
206 TNA DL44/1155, ‘Survey of lands reclaimed from the sea within the county of Lincolnshire. 12
Chas I. 1637’.
identity and spiritual unity’, as the eldest and most prosperous parishioners led their community in procession around its physical limits. Sickleprize told a commission of inquiry in 1618 that ‘about [30] yeares since and the last yeare and some other yeares of late they of Surflitt have walked in procession about the marsh of Surflitt And further saith that some yeares they went [on] the said procession & sometimes omitted it.’ Likewise John Smyth of Nibley, defending rights to reclaimed land in the Severn Estuary argued that parishioners there habitually made their perambulations on intertidal land:

That the perambulations of that forest extend so far into the river ad filum aquae, and noe further: And that the several Townships manors and Parishes doe soe farre on each side make their severall perambulations.

The walking of parish boundaries was significant. The shore and the water were part of the jurisdiction of the admiralty. Admiralty jurisdictions were ‘perambulated’ in boats, as at Poole in 1649, and land searchers were keen to establish whether land had been subject to admiralty court jurisdiction. Thus, being able to walk the parish boundaries signified parochial jurisdiction.

John Smyth’s greatest triumph against the forces of Crown-sponsored improvement came when defending the rights of the Lords of Berkeley to the intertidal lands of the lower Severn. Around three hundred acres of land at Slimbridge Warth had been reclaimed in successive increments since the thirteenth century. In the 1630s, ordnance manufacturer and mine prospector Sir Sackville Crowe sought to claim Slimbridge Warth for the Crown, having interests in mines on the opposite bank of the Severn in the nearby Forest of Dean. Crowe

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209 Berkeley Manuscripts, iii, p. 343.


212 Alan Davidson and Andrew Thrush, ‘CROWE, Sackville (1595–1671), of Laugharne, Carm.; formerly of Brasted Place, Kent and Mays, Selmeston, Suss.’, History of Parliament Online
began litigation against George Lord Berkeley who owned the Warth. Berkeley’s lawyer John Smyth rested the case for the defence on the assertion that the land had been won from the River Severn, not the Sea of Severn, and was thus claimable as part of the Manor of Berkeley, whose boundaries extended to the centre of the River. This went against legal opinion, that asserted that wherever a river was tidal it was an ‘arm of the sea’, making the Severn legally an ‘arm of the sea’ up to Tewkesbury. However, Smyth was able to convince Sir John Banks, then attorney general, that rather than an arm of the sea, the Severn was instead an ‘unruly river’. By showing ‘ancient depositions’ and ‘ancient witnesses’, Smyth was able to prove that ‘increases happening by the reliction of the river were constantly enjoyed by the lords adjacent’ and thus Slimbridge Warth was not owned by the Crown. Smyth argued that the Severn remained a river for 120 miles (193 km) from Slimbridge, bounded on either side by Monmouth, Glamorgan and Gloucestershire, losing its riverine status as it ‘venteth itself into the sea’ far beyond Bristol. Despite the saline quality of the water, and its large tidal range, Smyth showed how local farmers and merchants used the vast expanse of water as a river, and not the sea. He argued it was passable and fordable in summer ‘without danger under the midd thigges of a man’. The constant flux of the channel was also proof that the ‘sea’ was in fact river, as, Smyth argued, ‘the river doth often by insensible degrees remove its channell, and accordingly doth benefit or prejudice the lands adioyninge’ and that the river usually changed its course once in every twenty years. Going against legal opinion, using the strength of local environmental knowledge and knowledge of local customary uses of the river, Smyth successfully defended the Warth land for the Berkeleys. Here not only the nature of flooding, but the definition of a body of water itself was unstable, remained contextually specific and could be successfully challenged at law.

These particular improving projects then rested on instrumentalising an image of negative flooding that caused economic underperformance, and in some cases, imminent peril.

215 Berkeley Manuscripts, iii, p. 342–347.
Those who were confronted with these representations responded in ways that confounded simple categories of land and water, and demonstrated a way of living with water, particularly tidal waters, that was incompatible with the needs of clearly-defined private property. Similar themes can be observed in the following section, on the more politically fraught subject of drainage.

Yet, we must be wary not to romanticise the evidence given by coastal inhabitants. Their depictions of coastal marshlands were as politicised as Crown agents’, which we must recognise, even if we feel sympathy for their claims to title. We must also recognise that these disputes do not fall neatly along vertical lines of ‘class’ division, horizontal lines of inter-communal contention, or broader lines of central-local division. Thomas Burnett’s testimony for Moulton Marsh made distinctions between regularly overflowed common land on which ‘they used to put on what quantity of Sheepe onely they thought good’, and the ‘late Inclosure’, on which owners in severalty ‘putt on beasts & horse aswell as sheepe’. The distinction he offered repeated the searchers’ narrative of reclamation back to them only in the context of the new, private enclosure: local ties did not always bind. As Holmes has found for fen drainage disputes, environmental descriptions like these were often acutely ‘attuned to the perceived audience’.

In a long-running dispute over marsh between Tidd St. Mary’s and Holbeach on the Lincolnshire coast in the first half of the eighteenth century, multiple inquiries were held due to accusations of complex allegiances between different interested parties and their witnesses, with local gentleman William Newland alleging that evidence had been manipulated, the inquiry being held at ‘a very Great Distance from the said Marsh Lands’ so that ‘parties interested therein had no notice thereof nor had any opportunity of... proving their long and uninterrupted possession’.

The testimony resulting from these complex and overlapping loyalties demonstrates how improvement and its concomitant way of schematising intertidal land had deeply affected

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218 TNA DL44/1370, ‘Commission and inquisition re-surveying the extent of salt marshes after natural alterations in coastline of Lincolnshire. 1741–1742’; TNA DL44/1272, ‘Survey of salt-marshes on the coast, left by the retreat of the sea. 1716–1717’.
how land-water interactions and socio-environmental processes were conceptualised, justified and articulated. The long, withdrawing tides of English estuaries could not afford projectors the certitude they required. Few schemes were upheld in courts, as judges refused to impose the ‘nomothetic’ visions of landscapes onto often ‘irreducibly specific’ shorelines.

Communities did not always seek to demonstrate their own resilience. There were incidences in which it was advantageous for local voices to enhance images of their flood risk and share in discourses of precarity in order to justify external intervention or financial contribution. Coastal inhabitants could turn to the stock image of a marauding sea to encourage governmental intervention. The inhabitants of seven towns on the coastal marshes of north Norfolk used this image in two petitions to the knights of the shire seeking financial assistance for burdensome sea defence repairs in 1607. They referred to themselves as the inhabitants of the ‘poore disstressed contry of Marshland’ who had ‘latly sustayned very great losses by the overflowing of the sea’ and remained ‘daylye distressed both with the raging of the sea, and fresh waters’. Making continued reference to their ‘great and daungerous estate’, seven townships sought assistance by a grant of Parliament in the wake of ‘the great losse & daunger which we have sustayned and are likely dayly to increce’. This image of coastal precariousness had precedent. Elizabeth I had issued a proclamation ordering all ‘persons of good wealth and calling’ residing in London who usually lived on the coasts to return there. In their absence, remaining coastal inhabitants suffered, as ‘the [ability] and strength for defence of those Countries [was] notablie decayed’.

Coastal communities also mobilised images of national security in relation to a violent and invasive sea. The coastal towns of Suffolk sought assistance from the Crown after their sea defences had fallen into disrepair in the late 1610s. The town of Southwold had suffered from the ‘great rage & fury of the Sea’.

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219 Reingard Esser has shown that in the Low Countries, where the sea posed a constant threat to existence, these attitudes were much more prevalent. Esser, ‘Fear of Water and Floods in the Low Countries’, in William G. Naphy and Penny Roberts (eds), Fear in Early Modern Society (Manchester: Manchester University Press, 1997), pp. 62–77, p. 73.


221 Elizabeth I, By the Queene. The Queense Maiestie is crediblie enformed, that sundrie persons of good wealth and calling, havinge their habitation within sundrie Shires bordering vpon the sea coast (London, 1587).
and was left surrounded. Letters Patent issued to raise money for the towns indicated
Southwold had become ‘an Island surrounded with water’ which, should it be abandoned,
would become a ‘dangerous ... place unto this our Realme for any of our enemies to surprize
& fortifie against Us’. 222 Here, with perhaps half an eye on Hugo Grotius’ claim that the sea
should be accessible to all nations, defence against the sea is requisite for the defence of the
nation. 223

Riverine communities exhibited similar uses of strong and emotive language when
attempting to obtain financial assistance. In the opening years of the seventeenth century, the
Severnside crown manor of Rodley (Gloucestershire) had suffered significant deprivations to
its arable and pasture ground, orchards and fishing industry as a result of the Severn eroding
its shoreline, removing land and undermining the riverbanks so that they could no longer
support nets and boats. 224 In January 1605, Crown-appointed local surveyors were ordered to
inspect the results of ‘the violence of the same River’ by which ‘three hundred acres of the
best grounds of our same Manor [have been] swallowed upp notwithstanding the dailie
Charge and expenses of the poore tennites accounting to many hundred poundes within these
fewe yeares’. 225 The surveyors did not question this interpretation. They reported that the
‘furrious force and vehemente violence of the sea flowinges and lande flooddes’ necessitated
significant financial investment. The Crown sought this from the tenants themselves, yet the
report’s authors suggested that it would be much better if their inland neighbours might be
‘admonished or otherwise by Authoritie compelled’ to contribute. 226 A second report blamed
‘greate outrages and violent forces of the Seaflowe & fresh water streames’ for the decay of
the King’s salmon fishing there. For remedy they sought sanctions on downstream

222 James I, James by the grace of God king of England, Scotland, France and Ireland ... to all people
to whome these our letters patentes shall come, greeting whereas we doe vnderstand that our maritayne
[sic] townes of Donwich, Southwold, and Walberswicke in our county of Suffolke, haue bee the
most ancient [H]coast townes of our said county ... (London, 1619).
223 Hugo Grotius, Mare Liberum (Antwerp, 1609).
224 TNA DL 44/ 670, ‘Enquiry into the state of the banks of the Severn at Rodley, 2 Jas I, 1604–1605’;
TNA DL 44/730, ‘Report on the fishing in the Severn within the Manor of Rodley, Gloucestershire. 4
Jas I., 1606’.
226 Ibid., mem. 2.
fishermen.\textsuperscript{227} Read against the grain these sources demonstrate a utilisation of a discourse of danger and precarity as a means to offload the financial burden of flood defence repair, and to secure better fishing conditions. Here communities partook in the discourse of risk so that they might gain financially. Whilst representations of flooded landscapes most often fell along insider-outsider lines, these examples show communities deftly negotiating a government perspective for communal gain.

**Improving flooding II: drainage projects**

During the later-Elizabethan period, fenland and other land that was seasonally inundated came under ever-closer scrutiny from agricultural improvers and would-be drainage monopolists. Pro- and anti-drainage interest groups generated a large body of pamphlet literature in which they debated whether fens ought to be drained. The main sources of contention between the pro- and anti-drainage parties were not whether the fens should be productive, successful or integrated with a national economy (all argued they absolutely should). Anti-drainage campaigners even claimed that ‘such drayning as is most for our advantage , is most for the Commonwealths benefit.’\textsuperscript{228} Instead, as Eric Ash has argued, they disagreed on ‘the methods used to attain those goals, and in their attitudes towards the land itself.’\textsuperscript{229} This section looks at some of these attitudes towards land and water, and how parties attempted to make authoritative claims for them.

In the later sixteenth and across the first half of the seventeenth century, repeated attempts to drain the fenland of eastern England were made by a number of external financial investors. They targeted a 1,300 square kilometre area of seasonally inundated, biodiverse, and in places unploughable and boggy ground that came to be known as the ‘Great Level’, and which stretched from Cambridge in the south up to Boston in the north. Numerous schemes were put before Elizabeth’s Privy Council for the drainage of large parts of Eastern England, land that in its present state was seen as a missed opportunity in terms of both

\textsuperscript{227} TNA DL 44/730, ‘Report on the fishing in the Severn’.
\textsuperscript{228} Anon., *The state of the case concerning the late Earl of Lindseys drayning*, p. 8.
\textsuperscript{229} Ash, ‘Amending nature’, p. 125.
agricultural productivity and crown revenues. Anglo-Flemish engineer Humphrey Bradley proposed a highly ambitious and optimistic drainage project to rid the fenland of seasonal flooding once and for all. He estimated it would take 8,000 men a few months to dig a four mile channel to drain 400,000 acres, yielding landowners an extra £40,000 a year in profits.\textsuperscript{230} By making ‘thys wildernesse to a fruictfull Soyle’ it would be ‘better hable to nourishe in good State a hundrith thousand families’ than the current ‘one thousand in want’\textsuperscript{231} The pro-drainage pamphleteer known as H.C. lambasted the state of the fens in 1629 as lying ‘promiscuously’ undrained and instead praised the ‘fat and lusty soil’ of drained fenland and its ability to support a variety of crops, from fruit trees to more traditional grasses and reeds that ‘would mervailously increase & support the multitude of his Majesties subjects, wherein consisteth the glorie and strength of a Kingdome’.\textsuperscript{232} Walter Blith in his \textit{English Improver Improved} praised the value of managed, moderate flooding, whilst condemning the ‘standing, soaking water’ which bred ‘fowleness, and likewise gnawes out the heart and strength’ of land, ‘like the worm at the stomach’.\textsuperscript{233}

Various schemes, either permitted or undertaken by the Crown, and Parliament in the Interregnum, were advanced to drain the fens.\textsuperscript{234} James I’s government realised that any draining that involved the consent of the people was unlikely to succeed. Commissioners tasked with improving the King’s revenue in 1613 listed ‘Draining and inning of land from the sea, with the inhabitants’ consent’ as one of sixteen projects ‘not likely to prove well’.\textsuperscript{235} Such schemes were lampooned in Ben Jonson’s \textit{The Devil is an Ass} (1616), where the wily projector ‘Meercraft’ convinces the foolish Fitz-dottrel to undertake to drain land, under the impression he will grow rich and be made the ‘Duke of Drown’d-land’.\textsuperscript{236}

\begin{thebibliography}{9}
\bibitem{Summers} Summers, \textit{The Great Level}, p. 58.
\bibitem{Ash} Ash, ‘Amending nature’, p. 122
\bibitem{H.C.} H.C., \textit{A discourse concerning the drayning of fennes}, sig. A2v, A4, A4v.
\bibitem{Blith} Blith, \textit{The English improver improved}, p. 10.
\bibitem{James I} The best narratives of these are to be found in H.C. Darby, \textit{The Draining of the Fens} (2nd edn, Cambridge: Cambridge University Press, 1956), and Summers, \textit{The Great Level}.
\bibitem{Spedding} Spedding (ed.), \textit{Bacon}, iv, p. 361.
\bibitem{Ben Jonson} Ben Jonson, \textit{The Devil is an Ass}, Act II Scene iv.
\end{thebibliography}
That the fens were damaged by flooding became ‘an article of faith’ amongst the drainage projectors.\textsuperscript{237} The division of the fens of eastern Lincolnshire in 1636 supposedly united the crown and subject in a mutually profitable endeavour. Drainage and enclosure was ‘a worke that tends not only to the good of the Comon Wealth in generall but allsoe to the advancement of our Anuall Revenue and by the particuluer benefitt of every Comoner interested therein’.\textsuperscript{238} In 1649 the Rump Parliament passed an act for the drainage of the ‘Great Level of the Fens’, citing the current situation as yielding but ‘small and uncertain profit’. Taming flooding would be to the ‘great advantage and strengthening of the Nation’, as new cole and rape-seed plants would stimulate soap and oil production to aid the wool trade, hemp and flax could produce linen and cordage for shipping, which in turn would stimulate ‘Manufactures, Commerce, and Trading at home and abroad’, all of which would ‘relieve the Poor, by setting them on work’, all whilst leaving land left over for good pasture for cattle and good arable for corn and grain.\textsuperscript{239} Domestic manufactures would replace foreign imports, and alleviate a deficit in the balance of trade.\textsuperscript{240} To this list, Sir William Killigrew added three further reasons why draining would benefit the commonwealth: through increased taxation revenues on improved grounds, by eliminating the City of London’s need to spend over a quarter of a million pounds a year on foreign corn, and boosting the nation’s honour by ‘improving so much uselessse ground to so great profit’.\textsuperscript{241} After the fens were declared drained in 1653, the drainage was esteemed ‘a great improvement to the Kingdome, in recovering so
much Land from the Waters. After this temporary secession of failure, when the fens were flooded again in the mid-1660s, William Dodson proposed a drainage scheme, by which the poor fenland and its inhabitants would ‘grow rich and populous, to the strengthening of the King and Kingdom’. For drainage enthusiasts, there was everything to gain from ridding the nation of uncontrolled flooding.

In order to justify intervention on floodplains, they had to be seen to require intervention. Drainage promoters characterised the fenland as what Greg Bankoff has termed a ‘region of risk’. ‘Regions of risk’ are geographical areas that are depicted negatively, often as ‘inherently dangerous’, only to be saved, in Bankoff’s examples, by the introduction of Western science. Bankoff’s argument is made in the context of postcolonial studies, but can be applied to depictions of early modern floodplains. These ‘regions of risk’ are portrayed as inherently dangerous areas which require the intervention of external groups, and the application of specialist procedures, to make them secure, habitable and productive. The image of violent, uncontrolled flooding is at the heart of depictions of wetlands and coastal marshes as ‘regions of risk’, an image that allows the Crown and other external actors to legitimate intervention as a paternalistic exercise, helping the inhabitants of hazard-prone landscapes, defending its people, and defending the nation.

External authors sought to characterise the fenland as a place of illness, and its inhabitants backwards and poor. Classical and renaissance authors had warned of the ill health that low and wet grounds could cause. Heresbach warned against setting a house too near a fens and marshes, which ‘send foorth pestilent and deadly dampes, and a great number of venomous Creatures: which dying, for lacke of their olde moystoure, infecteth the ayre, and

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242 Anon, A Narrative of the dreyning of the Great Level of the fens, extending into the counties of Northampton, Norfolke, Suffolke, Lincolne, Cambridge and Huntington, and the Isle of Ely, containing about three hundred thousand acres (London, 1660).

243 William Dodson, The designe for the perfect draining of the great level of the fens, called Bedford level, lying in Norfolke, Suffolk, Cambridge, Huntingdonshire, Northamptonshire, Lincolnshire, and the isle of Ely as it was delivered to the honourable corporation for the draining of the said great level the 4th of June, 1664 : as also several objections answered since the delivery of the said designe now in agitation ; and as for the new works intended in this designe appears in the annexed map : and the charge of the whole calculated / by Collonel William Dodson. (London, 1665), p. 20.

breedeth sundry and strange diseases. Those looking to denigrate the flood patterns of the fens seized on these images to portray the fenland as requiring drainage to make it healthful. Its air was described as ‘corrupt’ and ‘unwholesome’. William Dugdale described the ‘poor desolate places’ of the Lincolnshire Fenland with disdain. The fens and marshes around the Wash contained ‘no element good’, ‘the Air being for the most part cloudy, gross, and full of rotten harrs; the Water putrid and muddy, yea full of loathsome vermin; the Earth spongy and boggy’. An anonymously-authored poem included in Jonas Moore’s history of the fen drainage project, referred to the illness of the undrained fens as where ‘not one Limb was sound./ The Liver rotted, all the Vitals drown’d.’ Such images persisted. Timothy Nourse, native of the often flooded parish of Newent, Gloucestershire, advised against setting a house in a river valley as they can be ‘incommoded many times by Floods’, and in winter become subject to ‘Foggs and watry Vapours’. In the early eighteenth century, Defoe repeated tall tales about the inhabitants of Canvey Island. He claimed that the ‘ague’ was endemic to Canvey, and that its native inhabitants had grown resistant to it. Incomers, Defoe claimed, died relatively swiftly, so much so that some Canvey men were on their twenty-fourth wife, their upland Essex wives surviving little more than a few years each.

The cold and overwhelmingly wet environment of the fenland led contemporaries to equate fenlanders with phlegmatic characteristics. Humans were thought to be made up of four essential humours, the balance of which determined personal characteristics. To be dominated by phlegm (rather than by blood, black bile or yellow bile) made one dull and slow.

247 Dugdale, The History of Imbanking and Drayning, [sig. A2v].
248 Ibid., [sig. A3].
249 Moore, The history or narrative of the great level of the fens, p. 72.
250 Timothy Nourse, Campania foelix, or, A discourse of the benefits and improvements of husbandry containing directions for all manner of tillage, pasturage, and plantation (London, 1700), pp. 298–99; David Souden, ‘Nourse, Timothy (c.1636–1699)’, ODNB.
251 Basil Cracknell, Canvey Island: The History of a Marshland Community (Leicester: Leicester University Press, 1959), p. 27.
porous early modern body could be affected by the environment which it inhabited: unhealthy, moist and cold fen airs could throw the body out of balance and allow phlegm to dominate. Dugdale saw the area of Holland as particularly bad. Having been gained from the sea centuries earlier, it was, in the early seventeenth century, said to be ‘a vast deep Fen, affording little benefit to the Realm, other than Fish or Fowl, with overmuch harbour to a rude, and almost barbarous, sort of lazy and beggarly people.’ Walter Blith complained of the ‘Sloathfull Impatient Slubberers’ of the fenland whose poor workmanship and effort ensured the fens stayed flooded. The fenlanders were ‘a rude multitude, or a confused heady people’, marked out by their ‘Brutish Clamours’, and ‘dulness and neglect’ towards drainage schemes. Any drainage should be ‘carefully overseen’, due to the ‘combination of labourers and Poor people [which] very much prejudice, besides their slothfull and sleathy slubbering’. As a noun, the verb ‘slubber’ (meaning ‘to run or skim over hurriedly and in a careless or slovenly manner’) referred to mire, mud, ooze, or slime, linking the behaviour and characteristics of the fenlanders to their wet physical environment. Moore’s poet’s rhetoric went further:

When with the change of Elements, suddenly
There shall a change of Men and Manners be;
Hearts, thick and tough as Hydes, shall feel Remorse,
And Souls of Sedge shall understand Discourse,
New hands shall learn to Work, forget to Steal,

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254 Dugdale, *The History of Imbanking and Drayning*, p. 171.
256 Blith, *The English improver improved*, p. 51; Moore, *History or Narrative of the Great Level*, p. 73.
258 “slubber, v.” OED; ”slubber, n.” OED, ‘Slub’ was used in this sense as a noun in Folkingham’s *Feudigraphia*, (see chapter two, above), and in Nathaniel Powell, *The Animadverter Animadverted* (London, 1663), p. 47.
New leggs shall go to Church, new knees shall kneel.²⁵⁹

This link between regional environment and ignorance was made with regards to other regions too. John Worlidge remarked on the relative genius and ignorance of Somerset and Wiltshire farmers respectively, the Wiltshire farmers taking no precautions to protect their hay crops from sudden rains and flash floods, ‘so naturally slothful and ignorant are some people, and naturally Ingenious and Industrious are other.’²⁶⁰ Isaac Casaubon noted that those that worked on arable farming in the few suitable fields of the undrained Isle of Ely lived uncommonly long, beyond a hundred years old in many cases, working into their eighties retaining their ‘firmo corpore’.²⁶¹ The link between pastoral fenlanders and physical incapability can be traced to Hippocrates, who in On Airs, Waters, and Places described the fenlanders of Phasis as ‘big and stout’, and having ‘little stamina [and] become quickly tired’.²⁶² This association of wetlands with slowness, bulk and a phlegmatic personality continued into the nineteenth century.²⁶³ Other links between the fenland and health were based on prejudice rather than Classical learning. One author commented on the fenland’s ‘dire Vapours (if there any were./ Besides the Peoples breath)’.²⁶⁴

Feckless inhabitants were presented as requiring drainage to sustain life in the fens. Camden had called the fenlanders ‘rude, uncivil and envious to all others’.²⁶⁵ John Norden, an advocate of surveying and improvement, argued using somewhat mixed metaphors, that the inhabitants of wastes and unimproved land ‘nourished and bred infinite idle fry, that coming ripe grow [into] vagabonds and infect the commonwealth with most dangerous leprosies’.²⁶⁶ The drainers of Hatfield Chase complained that the ‘hurtfully surrounded’ wastes of their

²⁵⁹ Moore, The History or Narrative of the Great Level, pp. 75–76.
²⁶³ W., ‘Notes on local peculiarities, physical or mental, arising from the soil or climate’, The East Anglian: or notes and queries connected with the countries of Suffolk, Cambridge and Essex, 1 (October, 1858), pp. 2–3.
²⁶⁴ Moore, The History or Narrative of the Great Level, p. 75.
²⁶⁵ Summers, The Great Level, p. 31.
²⁶⁶ Hoyle, ‘Custom, Improvement and Anti-Improvement’, p. 17.
regions ‘nourished beggars and idle persons’. Thus, William Dodson’s primary reason for his drainage scheme was that fenlanders ‘who were formerly very poor, by reason of the uncertainty of the Banks’ would ‘grow rich and populous, to the strengthening of the King and Kingdom’ after drainage. Moore’s polemical poet concluded with the contrast between the wealth and poverty of drained and undrained fens:

If therefore Gain, or Honour, or Delight,

Or care of Publick Good, will Men invite

Into this fortunate Isle, now let them enter

With confidence; since here they all concentrer;

But if all these be choakt, and drown’d with flegm,

Let them enjoy their Sloth, sit still, and dream.

The drainage of the fens would then be for ‘the reformation of people as well as landscapes’.

By disordering landscapes, flooding produced opportunities for the cataloguing and categorisation of land. The sixteenth and seventeenth centuries witnessed the rise of new practices designed to know land definitively and precisely, practices that were influenced by the experience of post-flood situations. Italian jurist Bartolus of Sassoferrato had introduced techniques of Euclidean geometry and rudimentary geographical surveying into questions over the ownership of newly formed land in the fourteenth century. Bartolus set out a method for dividing up alluvial deposits, islands and dried up riverbeds using mathematical precision and technical instruments. Stuart Elden has recently argued that this development was significant, as it emphasised the ‘importance of the law and technique’ on reclaimed land.

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267 Anon., *The Case and proceedings of at least sixty gentlemen participants and purchasers for valuable consideration, of lands in the levell of Hatfield Chace, the counties of York, Lincolne and Nottingham and more then two hundred of their tenants who have been dispoiled of their estates by the inhumane and barbarous ryots of the inhabitants of the manner of Epworth* (London, 1656), p. 1.
268 Dodson, *The designe for the perfect draining of the great level*, p. 20.
269 Moore, *The History or Narrative of the Great Level*, p. 81.
270 Hoyle, ‘Custom, Improvement and Anti-Improvement’, p. 23.
helping these liminal landscapes to become territorialized as ‘object[s] of political rule’.

It was not until the sixteenth century that such Euclidean precision was applied in England. Beginning with Sir Anthony Fitzherbert’s surveying manual, *The Boke of Surveying*, in 1523, the English tradition of surveying and practical mathematics was well established by the seventeenth century, reaching its most lasting and influential expression in John Norden’s *Surveyor’s Dialogue* (1607). Surveying had an important relationship with the State. In an early age of information and ‘political arithmetic’, knowing the scope and size of one’s territory and population, through written and mapped surveys, was crucial to maintaining order and control. More generally, the Crown sought to accurately determine property ownership and increase revenues through land-focused initiatives such as commissions of enquiry into concealed lands which proliferated under James I and Charles I, and were concerned more with the potential yields of its estates than with relationships with the tenants upon them.

Surveying and mapping – methods of producing knowledge about property – were some of the most important governmental tools of the age: Lord Burghley, Elizabeth’s Lord High Treasurer from 1572, kept and annotated copious maps, even making his own sketch map of the southern Vale of Berkeley. In France, Louis XIV reintroduced surveying as a tool in landscape improvement, for both military and fiscal advantage.

This desire to know landscapes according to the principles of surveying was also manifested at a local level in an attempt to bend flooded landscapes more fully to the requirements of individual private plots. For John Norden one of the fundamental benefits of surveying was its ability to settle boundary disputes, particularly those arising on floodplains.

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272 Elden, *The Birth of Territory*, p. 228.
Norden’s *Dialogue* is between a Surveyor and a succession of local people in a variety of roles on a landed estate. In the first of five dialogues, Norden’s Surveyor meets with a sceptical farmer, who is finally convinced of the value of surveying when told of its ancient use on the banks of the Nile, where floods ‘confounded the marks and bounds of all the grounds that were surrounded, in such sort as none knew his own land’. 278 The Nile was an instructive example for Leonard Digges, father of Thomas, who claimed that his ‘science’ of measuring land, ‘stereometria’, greatly

avayled the Egyptians when as by the inundation of Nylus their whole countrey was so drouned that with slime of the water all their Bounds and marks were defaced: Yet certayne wise men ayded with knowledge in this science, founde out and distributed to every man his owne. 279

Seeing utility for this ‘upstart art’ in England, Norden’s farmer noted how

it is daily seen, that questions do arise by like casualties, where Towns, Houses, Fields, Woods, and much Land hath been and are daily devoured, and in some places augmented, Rivers by force turned out of their right courses, upon other confining lands; whereof time hath taken such hold, as the truth is now brought into question, to the stirring up of quarrels between parties.

Belying Norden’s knowledge of at least the practicalities of agricultural life on low and wet grounds, the farmer excitedly claimed that surveying would help in post-flood situations:

if the ditches, which are the ordinary meres, metes and bounds between several men’s lands, be confounded, this device might after the winning of these

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279 Leonard Digges, *A geometrical practise, named Pantometria divided into three bookees, longimetra, planimetra, and stereometra, containing rules manifold for mensuration of all lines, superficies and solides: with sundry straunge conclusions both by instrument and without, and also by perspective glasses, to set forth the true description or exact plat of an whole region; framed by Leonard Diggges gentleman, lately finished by Thomas Diggges his sonne. Who hathe also thereunto adjoyned a mathematicall treatise of the fiue regulare Platonicall bodies, and their Metamorphosis or transformation into fiue other equilater vniforme solides Geometricall, of his owne inuention, hitherto not mentioned of by any geometricians.* (London, 1571), sig. A2v.
surrounded grounds again, truly reconcile them, and allot every man his own, which otherwise will be impossible to bring any true appropriation.\textsuperscript{280}

Surveying then had a particular appeal for the improving lord of flood prone land, and was often applied on recently acquired estates ‘to set them right’.\textsuperscript{281}

Surveying thus expressed an ideology in which land was seen as the property of the landlord, using geometric precision to elide interpersonal methods of spatial organization.\textsuperscript{282} Surveyors ‘challenged notions of land-holding as a bundle of rights and responsibilities, envisaging instead an abstract rural space, pliable to the aspirations of the agrarian improver.’\textsuperscript{283} This is crucial in the context of land reclamation and drainage disputes. In these legal and practical treatises, the Crown and prospecting land searchers had a justification and a method for seeking out, defining and compartmentalising land subject to the vicissitudes of rivers and the sea. The drive to know and define reclaimed land was then an inherently political and economic project that would disrupt communal land management practices.

Surveyors themselves recognised this. Surveying could be disadvantageous for the tenant, and the handmaiden of enclosure and improvement. Robert Record supposed that his geometrical approach to land surveys would not endear him to tenants:

\begin{quote} Yet though the other men vnthankfull will be, Surveyayers haue cause to make muche of me. \end{quote}

\begin{flushright} Norden, \textit{The Surveyor’s Dialogue}, p. 28. \end{flushright}


\begin{flushright} Andrew McRae, ‘The peripatetic muse: internal travel and the cultural production of space in pre-revolutionary England’, in Gerald MacLean, Donna Landry and Joseph P. Ward (eds), \textit{The country and the city revisited: England and the politics of culture, 1550–1850} (Cambridge: Cambridge University Press, 1999), pp. 41–57, p. 50. \end{flushright}
And so haue all Lordes, that landes do possesse:

But Tennauntes I feare will like me the lesse.284

Tenants in Dorset were distrustful in just such a manner, refusing to allow a surveyor to perform his duties, unwilling to have their land "knowen by measuringe".285

Surveying using geometrical techniques was superior to previous practices of land measuring because it was capable of incorporating areas that were unsuitable for simple measuring. The element of abstraction and observation available to the geometrical surveyor enabled him to overcome the watery obstacles encountered by the measurer, who moved across the landscape, encountering ‘the impedimentes of thickets, waters, myers & such like’.286 The ‘ignorant’ were said to have much trouble measuring ‘marshes couered with waters’, whilst geometrical surveyors might ‘take their angles on the outsides, or upon the bankes, or wals’ to gain a perfect measurement of the land, overcoming these ‘obstacles’ and compressing highly changeable landscapes to rationalistic plans.287 John Norden warned against the misinformation of tenants who might attempt to conceal the amount of land they held by using locally-defined standards of measurement that did not equate to those used by the surveyor.288 The erasure of local specificity in the surveyor’s plan was part of a general trend across the seventeenth century in which ‘acceptance of local particularity gave way to a representation of land as a commodity easily accessible and transferable within a market economy.’289

284 Robert Record, The pathvvay to knowledg containing the first principles of geometrie, as they may moste aptly be applied vnto practise, bothe for vse of instrumentes geometricall, and astronomicall and also for proiection of plattes in euerye kinde, and therefore much necessary for all sortes of men. (London, 1551) sig. ƾii.
286 Edward Worsop, A discoverie of sundrie errours and faults daily committed by lande-meaters, ignorant of arithmetike and geometrie, to the damage, and preiudice of many her Maiesties subiects with manifest proofe that none ought to be admitted to that function, but the learned practisioners of those sciences: written dialoguewise, according to a certaine communication had of that matter. By Edward Worsop, Londoner. Every one that measureth land by laying head to head, or can take a plat by some geometrical instrument, is not to be accounted therfore a sufficient landmeater, except he can also prooue his instruments, and measurings, by true geometricall demonstrations. (London, 1582), sig. Cv.
287 Worsop, A discoverie, sig. E.
289 McRae, God Speed the Plough, p. 186.
Against these practices of mathematical surveying, local fenlanders sought to make stronger claims to knowledge based on their local experience. The Anti-Projector asked whether it was ‘probable strangers will do us more good, and study our profit more then we will do our own?’ Rather, fenlanders could manage their own flood control, as they ‘know how to drain our selves better then they... and are better able.’

Projectors had ‘alwaies vilified the Fens, and have mis-informed many Parliament men’, yet ‘those which live in the Fens, and are neighbours to it’ were aware of their true situation. It was claimed that the new Commissioners for the Great Level disregarded local knowledge and specificity. They made fenlanders ‘dance attendance a hundred miles from their homes’, whereas ‘anciently according to Law and equity, for the ease of the six Counties, This Level was seaven Levels, and each Level had their several Commissioners and Jurors, and acted only in their proper Countries.’

Similarly, the inhabitants of the Soke of Peterbourough claimed that instead of six commissioners for the whole level, ‘there ought to be seven times six, by reason their were seven Levels.’ Expertise should be even more specific than that of the ‘level, as some called for ‘12 sworn Men of the Neighbourhood’ to survey the supposedly surrounded fens.

These local understandings of the fenland gave rise to strikingly different valuations and characterisations of flooded land. The ‘Anti-Projector’ claimed that the Earl of Lincoln’s drainage scheme was ‘to drain his own surrounded foul lands at the Publick charges’, and take ‘away the poor Country-mens lands (which were never drowned, or bettered by overflowing).’ Likewise schemes in Cambridgeshire sought simply to expropriate, rather than physically improve as they target lands that were ‘in truth dry grounds, or bettered by

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290 Anon., The Anti-Projector, p. 7.
291 Ibid., p. 8.
292 Ibid., p. 5.
293 Anon., The humble petition of the inhabitants of the soake of Peterborow, p. 5. They even disputed the number of parishes in the Soke itself, see Anon., A reply to a printed paper intituled The state of the adventurers case, in answer to a petition exhibited against them by the inhabitants of the Soake of Peterborow, which clearly demonstrates the said answer to consist of nothing but falsities and untruths, fallacies and equivocations, calumniations and detractions. : And for the better satisfaction of the reader, there is herewithall printed the petition itself, and the exceptions to the Act for drayning: together with a paper which the undertakers (though falsly) stile a warrant for a taxe. (London, 1650), p. 7.
294 Anon., The grieved Country-mans complaint.
295 Anon., The Anti-projector, p. 2.
overflowing, or at least able to drain themselves’. The inhabitants of the Soke of Peterborough claimed that their land was not ‘hurtfully surrounded’, but worth ten to twenty shillings an acre.

Local knowledge was derided in News from the fens (1654), which accused those that claimed drainage prejudiced navigation of being ‘no competent Witnesses,’ because the matter of drainage was a ‘matter of Art, wherein they can have no knowledge.’ William Killigrew tried to undermine claims that the much-championed Commissions of Sewers were bastions of local useful knowledge. He argued that they had been granted to ‘Gentlemen of the Country’ and ‘sometimes Strangers in the Place’, who were ‘not ever so intelligent in every scruple of Law’. In their adherence to local custom, fenlanders were criticised as ‘Slaves to Custom, Friends to Popery.’

Recent studies have questioned the distinction between local knowledge and that of external expert knowledge, particularly in relation to flood risk. Here it is less how knowledge is constituted that is at issue. Fenlanders and drainers leveraged their subject positions for polemical ends. For both groups, living with floods was significant for understanding them – for better or for worse. Fenlanders insisted that their knowledge was legitimate because of their experience of dwelling. This insistence, coupled with their adherence to local forms of land measurement, constituted a clash with drainers stemming from the need to navigate the fens.

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296 Ibid., pp. 2–3
297 Anon., The humble petition of the inhabitants of the soake of Peterborow, p. 1.
298 Anon., News from the fens, or, An Answer to a pamphlet entituled, Navigation prejudiced by the fen-drainers (published lately in defense of the petition of Lin, delivered to the Committee for petitions) (London, 1654), p. 4.
299 William Killigrew, The late Earl of Lindsey his title by which himself, and his participants, do claim 24000. acres of land in the fennes in Lincoln-shire; and concerning which a bill hath pass’d the House of Lords, and is now with the Commons, impowring Sir Henry Heron and Sir William Killigrew to perfect their undertakings; the which, if it hath not been according to the particulars contained in this paper, the countenance of any member of this House is in no sort desired hereunto. (London, 1661).
300 Moore, The History or Narrative of the Great Level, p. 75.
from different kinds of spatial practices – what Foucault characterised as the ‘little tactics of habitat’ and the ‘grand strategies of geopolitics’.  

The frequently inundated state of the fens was regarded as unnatural by supporters of drainage. Rather than being naturally wet and biodiverse, pro-drainage authors argued that flooded landscapes were an aberration of nature as they stunted their useful productive potential.  

Walter Blith was praised in the prefatory poem to his English Improver Improved as a someone who ‘With such a noble Genius, as by art/ Can heighten Nature’. Blith himself argued that moist and waterlogged ground could be to ‘reduced’ to its ‘naturall fruitfulness’, or improved ‘to a more Supernaturall Advance than they were ever known to be’. The implication of this schema was that the current state of the fens was worse than it ‘naturally’ would be by its recurrent flooding, and that once re-established, this ‘natural’ situation could then be augmented by more controlled watering, by ‘Artificially’ flooding the land with the ‘greater Rivers’.  

Attorney General Hobart’s opinion on the Case of the Isle of Ely rested on claims to the lands’ ancient naturalness. He claimed that the flooded lands of the Isle ‘naturally and anciently were dry grounds, and not continually overflown; so as they were truly land and not water’. Authors even proposed that ‘nature’ might used to restore the fens. One author claimed that the fens might be drained by the ‘guidance of Nature’, with ‘Art as a hand-mayd unto it’. The Duke of Bedford claimed that the fens were once a prelapsarian idyll, ‘sometimes accounted the Paradise of England, if we may believe History’. The anonymous author of the pro-drainage tract News from the Fens (1654) argued that those who claimed ‘that the water is a free Element and ought not to be restrained,’ used ‘but childish Rhetorick’. Rather, man was to control water, for ‘Fire and Water are good Servants, but ill Masters; and

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304 T.C., ‘To Captain W. Blith upon his Improved Improver’, in Blith, The English Improver Improved, sig. [D1v].
309 William Russell, Duke of Bedford, A particular of the ninety five thousand acres of fenny and low surrounded grounds, lying within the great level of the fens. (London, 1653).
that it ought to be restrained, when otherwise it would drown a whole Country, as this did.’

Drawing on the recent academic dispute between Hugo Grotius and John Selden, the author invoked the Dutch experience, ‘the Hollanders (who plead so much for *Mare Liberum*) are the greatest Imprisoners and restrainers of waters in the world.’

Nature should be utterly subdued for the author ‘H.C.’ who claimed that during the Baron’s War, rebels took shelter in the fens using the ‘naturall strength of the place, ... to which purpose it might serve againe, if God and the wisedome of our Gournours were not watchfull at the Helme.’

Images of control were also used to justify the intervention in the fenland. The anonymous poet in Jonas Moore’s history wrote of

... Floods muzled, and the Ocean tam’d,

Luxurious Rivers govern’d, and reclam’d,

Waters with Banks confin’d, as in a Gaol,

Till kinder Sluces let them go on Bail;

Streams curb’d with Dammes like Brides, taught t’ obey,

And run as strait, as if they saw their way.

William Dodson contrasted the uncontrollable tides (the ‘greatest enemy’) with human-directed rivers and runoff. He explained that schemes that used the speed of water descending out of the fens to scour the bottom of drains were hindered because ‘the unruly Tides do beat

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back our Freshes’. Unless ‘we can master the Tide, it is not possible to Drain this Level.’

The Dutch drainage engineer, Cornelius Vermuyden argued that the best lands would be produced by creating a controlled version of what existed without intervention elsewhere: he ‘resolve[d] to imitate nature (as much as can) be’ and ‘endeavour[ed] to contrive the workes that way’. Such a mechanistic view of the operation of fen hydrology stated that the natural world ‘could be corrected through active human intervention, and should be.’

But ‘nature’, and the degree to which it could be intrumentalised as part of a human scheme, was contested. The ‘old and Legal way of drayning’ claimed by anti-drainage fenlanders was through ‘the old Draynes ... the natural sinks and vent of the Fens.’ Likewise, Sir John Maynard argued that ‘old Dreynes are as the naturall sinks’, whereas the new proposed ones were ‘but pragmaticall and fantastical’. Drainage was almost alchemical – it proved a ‘Philosophers stone’, bankrupting the Adventurers, and used as a ‘Grindstone to the faces of thousands of poor people.’ New philosophy was vilified in the fenland drinking song, ‘The draining of the fennes’:

Our new Philosophers rob us of fire,
And by reason do strive do maintaine that theft;
And now that the water begins to retire
We shall shortly have never an Element left.

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314 Cornelius Vermuyden, A discourse touching the drayning the great fennes, lying wthiin the severall counties of Lincolne, Northampton, Huntington, Norfolke, Saffolke, Cambrige, and the isle of Ely, as it was presented to his Majestie. By Sir Cornelius Vermuyden Knight. Whereunto is annexed the designe or map. Published by authority. (London, 1642), p. 13.


316 Anon., The Anti-Projector, p. 7.


318 Anon., The Anti-Projector, p. 8.

The fens were ‘alwaies Fennes, ... even soe ordayned by God’, only drained by way of the Adventurers’ ‘Conjuration’.  

By linking ‘naturalness’ to a particular drainage-as-declension chronology, authors invited historical comparisons that were put in service by both drainers and fenmen alike.

Written and published histories formed a significant part of drainers’ public-facing legitimisation of their actions. Compressions, erasures and rewritings of history have been shown to have been crucial factors in legitimizing hydraulic interventions in other historical and temporal contexts. Their histories strove to narrativize interventions in the fenland as stories of progress, and success. They provided a necessarily selective recitation of events that placed the actions of the drainers in a narrative chain that began, in the most ambitious works, with a hurtfully flooded landscape overlaid with a weak local economy, endemic with poverty, and ended up with a flood-free landscape of contiguous private holdings, capable of sustaining near-universal prosperity. The history of the fens was then written as a history of the triumph of improvement. William Dugdale’s *History of Imbanking and Draining* (1662) was specifically commissioned in 1657 so as to legitimise these schemes. Dugdale’s work showed ‘that draining was unquestionably a good thing’, and had been ‘an essential element in national progress’ in preceding centuries. Other ‘histories’ were composed that sought to justify the schemes. Moore’s *History* used a Biblically-inflected narrative of a fenland paradise undone by a great deluge. The fenland was once ‘very Paradise, for that, in pleasure and delight, it resembleth Heaven’, yet after a ‘violent Breach and Inundation of the Sea’ (supposed to have been caused by an earthquake), it became flooded, with homes, farms and entire towns overwhelmed. Some omitted flooding altogether. Several pamphlet and broadsheet histories of drainage schemes were composed as summary lists of the main events,

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which included only a narrative of the legal proceedings regarding drainage projects. The anonymous *Narrative of the dreyning of the Great Level of the fenns* mentions only the financial and management aspects of the schemes, relating changes in legal title and the number of acres to be drained as the project changed hands over the course of the seventeenth century. Despite the schemes’ numerous setbacks, and the enormous contention they occasioned, no hint of opposition, riot, or inundation occurs in these narratives.

History writing was not confined to those whom the law (if not the land) had declared victors. Those opposed to drainage adopted a similarly historical focus; they drew on the long-distant past and selectively omitted events that would damage their claims to have enjoyed their lands peaceably and profitably for centuries. They looked back to before the first state-sanctioned drainage authority (the commission issued to Henry de Bathe in 1258 to enforce the customs of Romney Marsh), to argue that sewers law, and responses to flooding, were founded on ‘what was time out of minde in use’ in the mid-thirteenth century. Anti-drainage pamphlets usually referred back to ‘ancient customs’ in their longest claims, and frequently made reference to Henry III’s revised Magna Carta of 1225 (the fifteenth and sixteenth clauses of which protected the subject from being compelled to pay to maintain banks that were not of ancient origin). Long-established precedent, adhered to by generations of fenlanders was cited as a reason to halt drainage procedures and return fen hydrology to its previous state.

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325 Anon., *A Narrative of the dreyning of the Great Level of the fenns*. Others give very little space to flooding, see N.N., *A narrative of all the proceedings in the drayning of the great level of the fenns extending into the counties of North’ton, Lincoln, Norfolk, Suffolk, Cambridge, and Huntingdon, and the Isle of Ely, from the time of queen Elizabeth untill this present May, 1661 / for the information of all concerned.* (London, 1661); Anon., *An answer to a printed paper, intituled The state of the case of Mr Henry Howard, son to the late Earl of Arrundell, Sir William Tirringham, Collonel Sandys, Collonel Phillipps and others, claiming 35000 acres in the fennes called Bedford Levell* (London, 1661).

326 Anon., *The state of the case concerning the late Earl of Lindseys drayning the Fennes between Borne*, p. 19.

327 Anon., *The Anti-Projector*, p. 5; Anon., *A breefe relation by the commoners in Lincolnshire of their legall interest, and that nothing of interest the vndertakers have in law.* (London, 1651), pp. 17–18; Anon., *The grieved Country-mans complaint*; Anon., *A breviate of the cause depending, and proofes made before the committee of the late Parliament for the Fens by the inhabitants between Borne and Kime Eae, in the county of Lincolne, being lords, owners and commoners of, and in the several Fens, where in Sir William Killigrew, &c. pretends a title as sharers with the late Earle of Lindsey.* (London, 1655), p. 13; Anon., *Case of the town and port of King’s-Lynn in Norfolk, as to their navigation.* (London, 1696).

328 Anon., *The case of the owners of more than sixty thousand acres of rich and valuablelands, bordering upon the fenns, called, Bedford-Level* (London, 1697).
Both of the clearly-defined sides in this debate used history as a polemical tool, to ground their claims to authority and buttress their appeals to an idea of ‘nature’.

In these debates over the value of the flooding and drainage of fenland, competing actors again articulated differing understandings of floods. These were inflected with the ideology of improvement and the rhetoric of anti-improvement. Debating flooding invoked clashing concepts of spatial organisation, knowledge, nature, and history. Furthermore, the schemes of the improving drainers utilised classically influenced images of unhealthy wetlands to further support calls for drainage and flood control. That such wide-ranging and fundamental differences arose between interest groups speaks to the scale of the intellectual upheaval accompanying concepts of improvement, and the local importance of floods, and the fundamental ways in which they structured daily life, property rights and economic activity. Seventeenth-century fen drainage was the product of advanced concepts of improvement that precipitated attitudes towards wetlands that were a far cry from those held by wetland inhabitants.

**Conclusion**

This chapter has shown how the imperatives of improvement came to shape the ways in which different kinds of flooding were understood, as well as some of the implications of representing flooding in certain ways. In improving circles floods came to be seen as overwhelmingly negative phenomena, unless strictly controlled by agriculturalists, whereas broadly speaking, floodplain inhabitants retained more negotiative attitudes towards floods. Beginning with an examination of medieval attitudes towards flooding, this chapter showed that before the sixteenth century, low, wet and seasonally inundated land enjoyed relatively high cultural value. Whilst exploitation remained economically viable, wetlands were prized as some of the most productive lands in the country. Worsening flooding in the fourteenth and fifteenth century, coupled with new ideas about altering landscapes for gain from the sixteenth century, shifted attitudes towards seeing floods as a brake on economic prosperity. Rather than being seen as something to be managed and negotiated, floods came to be seen as something to eliminate for the cause of economic development.
These improving ideas had ramifications both for national political culture, and in local environmental disputes. The equivocal nature of the powers granted to Commissioners of Sewers caused a legal and constitutional problem for the Crown, which sought to increase revenues through prerogative powers exercised through Commissions of Sewers, aimed at improving rents and yields. Just how far commissioners could intervene in flood patterns rested on the perceived severity of those floods. The description and representation of flooding then became highly politicised, and the rhetoric of flooding as environmental degradation passed into the political vocabulary of the mid-century. Outside of these debates, in the schemes designed to improve rents and yields at the cutting edge of improvement, communities responded to negative images of flooding by creating narratives of resilience and longstanding usage that proceeded from fundamental differences in both the construction and deployment of knowledge about flooding. Together, these examples have shown how flooding and politics were inseparable in the early modern period, from the House of Commons, to the drainage of commons.

This chapter has also demonstrated that attitudes towards wetlands were far from hegemonic, in contrast to previous literary studies. Instead, wetlands were highly contested and politicised. Attitudes towards flooding could be bound up with a belief in progress, mercantilist concepts of the national economy, royalist or parliamentarian sympathies, as well as differing claims to the ownership and stewardship of land. To take the purely negative representations of wetlands and claim they were shared by all those concerned with them is to uncritically reproduce the cultural products of improvement. The improving image of negative, damaging flooding was at times utilised across competing interest groups, and in some instances functioned as a shared repository of meaning from which both flooded communities and external interests could draw, yet in more cases than not, the intensity, frequency and history of flooding was contested.

By exploring how representations of flooding were both manifestations of and contributors to political differences, this chapter has linked environmental concerns with

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political concerns. Previous historiography has asserted that early modern environmental struggles were apolitical. Lindley has argued that fenland disputes did not have a bearing on the politics of the nation, as they were in essence local and opportunistic. Such a perspective relies on a characterisation of politics as, in Heather Falvey’s words, ‘related only to issues pertaining to the government of the realm and to the political nation’.

In response to Lindley, Holmes has argued that fenlanders demonstrated ‘an awareness of central politics, and perhaps of the legal and constitutional concerns that were thought to exercise the national rulers at Westminster.’ Whilst this chapter has broadly supported the Holmes view of political action in the fens, it also goes further. By studying an environmental process, flooding, rather than just a landscape type, such as the fenland, this chapter has traced related disputes across different contexts. Previous studies’ attention to landscapes confined them to the perspective of property. Both Holmes and Lindley see the fenland dispute as centrally a dispute over property rights, variously politicised in a national context. Yet, it was also a dispute over the ways in which a landscape functioned. Flooding disrupted claims to property. As David Turton has observed in relation to the lower River Omo, ‘understanding the history of the interaction between human activity and the environment in any particular area is a matter of understanding both local ecological processes and broader political ones’. The way that prevailing sixteenth- and seventeenth-century governmental ideologies characterised flooding, and the ways in which local practice engaged with flooding imbued it with an essentially political dynamic.

Flooding was then both an inherently political and environmental issue. As Ken Hiltner has recently argued, any understanding of environmental “consciousness” that focuses exclusively on wilderness and “nature” to the exclusion of the central dynamic whereby we

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become conscious of the countryside and the earth (regardless of what state they are in at the time of the emergence) is simply misguided.334 This is in contrast to recent arguments made by Bruce Boehrer, who has refrained from characterising fenland politics as environmental because their ‘environmental concerns figure within a much broader complex of religious, social, and political grievances to which the environmental issues themselves remain distinctly subordinate’.335 This chapter has certainly not attempted to argue that political responses to flooding were ‘green’ or ‘environmentalist’. Rather, against characterisations like Boehrer’s, it has sought to show how, in relation to flooding, the environment became political, and political projects had crucial environmental dimensions. To then characterise flooding in this period as an environmental or political issue then misses the point that floods were both. By the first half of the seventeenth century, improvement, rival statutory interpretations and economic projects had ensured that environmental and political concerns were entwined in the now ‘problem’ of flooding.

5. Flooding and state formation

Abstract
This chapter shows how flooding interacted with regional and national politics. Where the previous chapter considered the political aspects of the ways in which flooding was framed in disputes, this chapter looks at the formal political structures that floods invoked. After first outlining some of the issues in the historiography of early modern English state formation and environmental influences on state power, it then addresses the limited ability of central government to assist flooded communities. Whilst local and regional flooding could capture the attention of central government, this was often only when related to legal and constitutional issues. Flooding had a far more meaningful impact on the political lives of local and regional powerbrokers, through provincial officeholding, particularly in Commissions of Sewers. Central government was slow and incapable of helping stricken communities. Power was devolved to the localities to deal with imminent need and ongoing maintenance. This power was popularly assented to and engaged lots of people very often. Thus the state grew. This had unintended consequences, both in the localities, and for the nation. The local impacts of this were that the state grew faster at times of crisis, and that local oral water management customs became increasingly codified. Nationally, corruption reduced confidence in local officers, contributing to friction between centre and locality, grievances which contributed towards the Grand Remonstrance. Some of these problems emanated from the relationship between the demands of expediency and the demands of the law. As a whole, Commissions of Sewers are a case study representative of early modern state formation, in its positive and negative aspects, and show the need to consider environmental politics within broader early modern political history.

Introduction
In his wide ranging history of the drainage of the southern Lincolnshire fenland, W.H. Wheeler remarked upon the importance of Commissions of Sewers for the history of the region. He claimed they were ‘not only an ancient but a very important body of Commissioners, with
Among their powers, Wheeler noted, was the ability to ‘summon juries, administer oaths, lay rates, levy fines, and issue distresses.’ Decisions they made were particularly important for the ongoing drainage and defence of the fenland, as ‘many of their acts are judicial, and can only be set aside by appeals to the higher courts.’

Contemporary jurist and Commissioner of Sewers Robert Callis shared this view, and referred to the Court of Sewers as an ‘eminent Court of Record’. However, Commissions of Sewers are given a relatively minor role in histories of English government and the growth of the English state. In their influential, eleven volume survey of the history of English local government, Beatrice and Sidney Webb passed judgement on the records produced by the Courts of Sewers. Courts of Sewers, the Webbs claimed, were ‘neither important nor exciting.’ Their organisation appeared to the Webbs ‘to have been of the most primitive character’, and they were summarily dismissed as ‘the most obscure corner in the whole of English Local Government.’

The Webbs’ judgement is indicative of much of the historiography of early modern politics which fails to account for the environment. Theirs has been one of the most blunt and influential judgements of the Commissions of Sewers, yet it makes explicit what a good deal of early modern political history does not: that early modern politics pertained to the arts of governing people, territory and markets. Politics dealt with the mediation of social, economic and legal relationships that occurred between people and between states. This chapter aims to show that while this understanding of politics is useful, it excludes the many attempts early modern governments made to regulate (socio-)environmental processes. Thus, it argues that the Webbs were far too quick in dismissing Commissions of Sewers, and by extension some

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2 Robert Callis, *The reading of that famous and learned gentleman, Robert Callis ... upon the statute of 23 H.8, Cap. 5, of Sewers, as it was delivered by him at Grays-Inn in August, 1622.* (London, 1685), p. 128.  
3 Beatrice and Sidney Webb, *English Local Government* (11 vols, London: Frank Cass & Co., 1963), vi, pp. 39–40. In 1899 Sidney Webb addressed London County Council with the request that it make efforts to publish such of its earliest sixteenth century records ‘as are of historical interest’. Eleven months later, the Council resolved to publish such records, yet, perhaps to the disappointment of Mr Webb, chose to begin with the earliest minutes of the Surrey and Kent Commissioners of Sewers. No further volumes were published. G.L. Gomme, ‘Introduction’, in London County Council (ed.), *Court Minutes of the Surrey & Kent Sewer Commission* (London: n.p., 1909), i, pp. i-xii, pp. ii-iii.
of the environmental arms of the early modern state.

Despite the importance of Commissions for the growth of the state, Commissions of Sewers remain relatively neglected in the historiography of early modern English government and politics. They have been discussed with reference to constitutional issues before the Civil Wars,\(^4\) and are mentioned as primary political actors in histories of the drainage of the fens.\(^5\) Commissions of Sewers are then discussed in terms of the constitutional questions they raised, and not the environmental processes they were concerned with. No attempt has been made to understand the relationship between these two issues, and thus the Commissions’ relationship to concurrent processes of state formation remains unexplored. This is unsurprising given the objects of government selected for study by historians. In the historiography of early modern English state formation, government is concerned with human, and specifically social, economic, religious and legal affairs. State formation has been shown to have occurred through the rise of social welfare,\(^6\) the rise of the fiscal, tax-collecting state,\(^7\) the reformation of manners and the enforcement of religious discipline,\(^8\) and the exercise and negotiation of judicial authority.\(^9\) Until recently, the state and the environment have not been considered together. Karl Appuhn has demonstrated how centralised forestry planning undermined the power and authority of the renaissance Venetian state.\(^10\) Paul Warde has shown how changes

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in the role and function of the state in early modern Württemberg were limited to those possible within a society and economy operating within the constraints of a ‘wooden world’. Most recently, taking a more cultural approach to early modern politics, William Cavert has shown how state power was projected through the creation of orderly urban environments, as Charles I sought to control his immediate physical environment by ridding Westminster of nuisance coal smoke, exhibiting a politics of ‘courtly display and hierarchy, of distinction and exclusion’. These studies indicate the rich possibilities afforded by studying the early modern state and the environment together.

Karl Wittfogel is the most (in)famous proponent of the argument that the growth of states can be linked to their control of natural processes. In Oriental Despotism (1954) and elsewhere, Wittfogel argued that strong, centralised, and bureaucratic states developed wherever there was a need to collectively manage water supply (particularly for irrigation) on a large scale. In these ‘hydraulic societies’, an ‘agromanerial bureaucracy constituted the ruling class’ – those with the experience and expertise required for the management of large volumes of water were able to gain and maintain power, forming a ‘bureaucratically despotic state.’ Wittfogel claimed to observe these processes at work in the development of the Chinese state, arguing that early moves towards cooperative labour and centralised management ‘initiated an institutional development which led far beyond the starting point... [to] colossal political and social structures’, and to the loss of personal freedoms.

Donald Worster argues that although Wittfogel’s argument is heavily biased towards scientific understandings of irrigation, is ethnocentric and demonises Chinese society, it can still prove fruitful for historians of water and states. It is Wittfogel’s demonstration of a ‘link between water and power’ that goes some way towards redeeming his hypothesis.

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14 Ibid., pp. 5–8.
15 Ibid., p. 19.
offering a very loose reading of Wittfogel, and gleaning the problematisation of water and
d power, Worster enables us to retain something of Wittfogel’s project in an analysis of early
modern English state formation.

Whilst it is not possible to argue that early modern state formation was engineered by
‘agromanagerial experts’, or that the state was founded on the central control of water
resources, à la Wittfogel, the state did expand through the use of environmental regulation.
This did not feature an attempt to obtain ‘total power’ through the control of water resources,
but such environmental regulation, implemented through statute and service, expanded the
reach of the state and the scope of the business of its officers. The state sought to impose
moral, religious and legal standards of behaviour through its local officials; there was a
similar, concurrent attempt at improving and directing the use of land and water.

The historiography of early modern English state formation is characterised by two
distinct bodies of literature, each focussing on a different level of government. The first,
typified by the work of Geoffrey Elton, emphasises the initiatives of central government and
the policy decisions of individuals in court and council. This literature sites many of the
important changes in the early modern state in the earlier sixteenth century – the growth of the
state is a strictly Henrican phenomenon. The second body of scholarship focusses on a longer
and later period. This literature emphasises the implementation of policy in local communities,
focussing on the experience of governance rather than the machinations of Government. Any
discussion of state formation must then engage with these two literatures.

Elton’s two major studies of the mid-1950s cast a long shadow over the history of the
early modern state. In his first major work, The Tudor Revolution in Government (1953) Elton
argued that the government of Henry VIII, and the work of Thomas Cromwell in particular,
revolutionised the way England was governed. Key to this ‘revolution’ was the consolidation
of power in a national bureaucratic centre, with power vested in offices that were staffed by
men who made up the Privy Council.17 This ‘bureaucratization of government’, led by
Cromwell, was profoundly important for the formation and character of the English state.

17 Geoffrey Elton, The Tudor Revolution in Government (Cambridge: Cambridge University Press,
Elton argued that government in the subsequent century up until the 1640s did little else than see these reforms ‘worked out and only details changed.’\textsuperscript{18} Elizabethan and Jacobean governmental reforms were marginalised in this narrative, being portrayed as merely developing ‘the achievements of that earlier and sterner age.’\textsuperscript{19}

The focus of Elton’s work was consistently on government. It was Parliament, Council, and the court that were the instruments of change, with Cromwell the most active and energetic reformer. The centre was where government policy was formulated, where groups came to lobby for specific interests, and was where, in Elton’s view, engaged political subjects strove to be.\textsuperscript{20} Despite this central focus, Elton did acknowledge the importance of the implementation of policy in the regions of England. Elton recognised that Tudor government ‘depended on the sharing of power, right through the structure, from monarchs to village elders’, and was characterised by the ‘principle of participation, defined by custom and law but articulated by political awareness’.\textsuperscript{21} This project was not however one he chose to pursue. The extent of Elton’s engagement with the local exercise of state power came in Policy and Police (1973), in which he again focused on central initiatives, analysing Cromwell’s efforts to persuade southern regions to conform with Reformation.\textsuperscript{22} Despite caveats about ‘participation’ and power sharing, Elton’s work typifies scholarship that emphasises the power and rigidity of a political centre antagonistically cast against local associations and interests with an ‘opposition to Westminster’.\textsuperscript{23} The impacts of these reforms in the provinces have however been pursued by subsequent scholars.

Elton’s strictly central focus has tended to obscure local politics. Such an institutional focus drives a historiographical wedge between ‘the state’ and ‘society’, as it attempts to

\textsuperscript{18} Ibid., pp. 416–20.
\textsuperscript{19} Ibid., p. 418.
\textsuperscript{21} Ibid., p. 56.
analyse the machinations of government without looking at concurrent practices of governance. Solely focusing on the institutional centre, as an autonomous actor with ‘goals and programs’ can lead to an oppositional view of early modern government. This obscures the state’s functioning within local society, and ‘rules out any notion of interaction between the state and the various classes in society, making it impossible to detect common interests or class alliances.’

Concentrating on court and Council makes ‘local politics appear only as an episodic series of responses, and their creative and negotiative nature is all but invisible.’ Furthermore, the increasing scale and reach of local government was as much a local as it was a central initiative: direct demands from the centre could only solicit so much action, and the state then relied on ‘the willingness of individuals and groups in local society to employ the resources of state power for their own particular purposes.’ Despite Cromwellian reforms, the English state remained an agglomeration of ‘overlapping, superimposed communities which were also semi-autonomous, self-governing political cultures’ and governance was made possible by the initiative of local officeholders. This local initiative manifested itself in official fora like court sessions and litigation proceedings, in a general ‘popular encouragement of state involvement’, that acknowledged that ‘stronger legal and administrative bodies could be a resource as well as a threat for the local community.’

At an immediate and fundamental level, ‘establishing the idea and effectiveness of the "state" basically meant having people on the ground who could reasonably order others to do things.’ Mark Goldie has estimated that one half of all adult males could have plausibly

29 Warde, Ecology, economy and state formation, p. 22.
been governing, in a parochial capacity at least, in any one decade in the seventeenth century.\textsuperscript{30} It was such a weight of numbers that led W.B. Willcox, as early as the 1930s, to observe that the study of local government in Gloucestershire was the study ‘of men rather than of laws’, and that ‘the way in which the men administered the laws was determined by the way in which they and their neighbours lived.’\textsuperscript{31} Governance then ‘depended on multilateral assent to the policies of government’, by central government and its local representatives, and by neighbour and neighbour.\textsuperscript{32} In terms of the implementation of policy, this was not government that was strictly centralized.

Further challenging Elton’s thesis, Anthony Fletcher’s account of ‘reform in the provinces’ problematizes Elton’s confident dating of a Tudor revolution in government to the 1530s. Fletcher notes that the growth of the state in the localities amounted to a ‘general quickening of the tempo of local administration, sustained to varying extents throughout the period’.\textsuperscript{33} Building on this emphasis on locally based governance, Braddick argues that it was not until the 1550s that the state existed as ‘a coordinated network of territorially bounded offices exercising political power’.\textsuperscript{34}

This ‘general quickening’ occurred through local institutions that were, at varying levels of abstraction, answerable to central government. Crucial among these local institutions were Commissions. Commissions have been identified as important manifestations of the twin trajectories of the growth of the early modern state. Penry Williams argues that later Tudor government was characterised, in part, by a growth in the use of Commissions, their proliferation amounting to effective ‘government by commission’.\textsuperscript{35} Commissions were directly responsible to central government. A commission was obtained from the monarch, or their representatives in Council, with those that then worked under the seal of commission

\textsuperscript{31} W.B. Willcox, Gloucestershire, a study in local government, 1590–1640 (New Haven: Yale University Press, 1940), p. xi.
becoming royal Commissioners. Whereas commissioners were handpicked crown appointees in the earlier sixteenth century, Elizabethan commissioners were drawn from the ranks of local landowners, who were suggested locally. This was an important development, as government was increasingly conducted by the justices of the peace, in quarter sessions, petty sessions, ad hoc meetings, or through unilateral, discretionary individual action. The commission of the Peace was heavily burdened during Elizabeth’s reign, with Edward Hext’s proverbial ‘stacks of statutes’ weighing justices down to a point where they were unable to meet many of the demands of statute law. As assize justices became increasingly removed from the day to day activity of county government, a further burden fell on JPs. Acting outside of the commissions of the peace, separate, parallel commissions then wielded political authority on specific matters with powers directly derived from statute and council. Their local character made their relationship to the political centre flexible, and lent ‘the early modern state a palpability and presence in the localities that it could not otherwise have enjoyed’.

Commissions such as Ecclesiastical Commissions, those for Oyer and Terminer (investigating felonies and alleged treason), Concealed Lands (investigating untaxed and undeclared landholdings) and Commissions of Sewers (implementing flood defence and drainage) played an important role in ensuring the particular application of certain statutes, and the remedying of specific perceived problems.

To illustrate how environmental stimuli influenced this history of early modern government, the following sections examine how central, regional and local political institutions responded to flooding.

**Central and regional government responses**

Despite the best efforts of local MPs, the organs of central government were slow and ineffective in responding to problem flooding in the localities. Particularly damaging floods could focus parliament’s attention on local issues, yet could never significantly occupy it.

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36 Fletcher, Reform in the Provinces, p. 43.
37 Ibid., p. 52, p. 116.
After devastating regional flooding in the south west in 1607, Edward Phelips, the Speaker of the House of Commons urged debate on the ‘manifold Wants and Miseries’ resulting from the ‘late great Overflowing of Waters’. The House was moved to create a committee for Inundations to consider ways to ensure ‘the Repair and Relief of the Losses and Calamities occasioned by so extraordinary an Accident, whereof the like hath not been heard of in many Ages.’

Phelips was from a prominent south Somerset family, based at Montacute (near Yeovil). He was elected MP for the county in 1601 and 1604, and remained responsive to the needs of crown and county, joining with Somerset Justices to petition the crown for aid. Despite the urgency of the Speaker’s plea, the house postponed the committee’s first scheduled meeting by three days, and it first met on 10 March 1607. Sir Maurice Berkeley, Phelips’ fellow Somerset MP gave the first report from the committee on 27 March. Sir Maurice had even closer links to the devastation than Phelips. His Minehead constituency was a once flourishing, but now floundering port on the north Somerset coast, and his family home was Berkeley, Gloucestershire, at the heart of the low-lying Severnside vale. The committee recommended the affected area be given financial assistance, with funds raised through a part-voluntary, part-compulsory contribution. Various taxation methods were considered, including a two-year parish rate being collected under powers granted in 1597 for collections for hospitals, but the voluntary method was considered most plausible, with more to be raised by constraint if required. No sum was agreed, and the committee was sent back to deliberate further.

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40 Commons Journal, i, pp. 346–347.
41 Rebecca S. More, ‘Phelips, Sir Edward (c.1555–1614)’, ODNB.
43 Commons Journal, i, (consulted online at <http://www.british-history.ac.uk/report.aspx?compid=1760> [accessed 6 October 2014]).
44 Commons Journal, i, pp. 355–356.
46 Commons Journal, i, pp. 355–356.
47 Commons Journal, i (consulted online at <http://www.british-history.ac.uk/report.aspx?compid=7209> [accessed 6 October 2014]).

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as being scheduled, yet no report of the meeting was made, and no sum of money agreed. In the context of parliamentary procedure, it is unsurprising to see the committee’s efforts come to little. In the seventeenth century, parliamentary committees were met with a ‘prodigious apathy amongst those named to [them]’. Through its use of committees for special causes, the House of Commons proved an ineffective source of aid for flooded regions.

The failure of central government to provide for flood victims is in stark contrast to responses to large fires in the period. A system of ‘briefs’, or letters patent, operated as a means of legitimately soliciting charity from parochial congregations after Sunday services, and infrequently from house to house. The Cornwall parish of St. Ives obtained such a brief in March 1586 after the ‘violence of ye Sea’ and ‘the outrageous driving of the sandes into the said Towne’ had left it impoverished and decayed. The town was allowed to collect money for six years in the six adjoining counties and seven regional cities. However, the importance of this method of relief for flood victims has been overstated by historians. Briefs are often said to have been issued in circumstances of personal or communal misfortune, such as after ‘fire or flood’. The incidence of briefs after flooding pales in comparison to those issued after fires, or for church repairs. It was more likely that flooded parishes would be recipients of briefs than distributors. In 1635 the Justices of Monmouthshire wrote apologetically to the Privy Council to excuse the small contribution made by the inhabitants of the Wentloog Level of £21 to two briefs for the repair of St. Paul’s, as it had grown ‘poor by reason of the last great inundation ... being surrounded by the sea, and divers messuages and much land eaten up by the violent rage thereof’. Few flooded parishes received this kind of aid themselves. Just one out of 145 briefs read in the parish of Clent, Staffordshire (now Worcestershire)

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52 CSPD, celxxxi, p. 163.
between 1672 and 1705 was for losses sustained by flooding.\textsuperscript{53} This was for a flood in Kirksanton, Cumbria, after a ‘fearfull storm’ and heavy rain had stuck the region in June 1686.\textsuperscript{54} In his authoritative study of the ‘church brief’, Bewes finds only four listed for reason of inundation out of a total of 309 in the period 1652–1704.\textsuperscript{55} Two out of the sixty briefs listed by Oldfield for the Berkshire parish of Little Wittenham between 1660 and 1721 relate to flooding.\textsuperscript{56} In the period 1735–1751, the East Riding parish of Burnby collected for 132 briefs, of which only four related to flooding.\textsuperscript{57} Likewise, just two of nineteen recorded briefs in the Congregational Church of Denton between 1743 and 1756 relate to flooding.\textsuperscript{58} Even when briefs were issued for floods, they failed to collect sufficient funds to cover even the most basic of losses. In December 1720 the Lancashire coast was inundated in several places, causing nearly £8,000 worth of damage. A brief was obtained from the Quarter Sessions, and collections took place within the county and as far away as Rutland, yet only £103 was raised, and was set aside for the school rather than to relieve any individual’s losses.\textsuperscript{59} Fire and church repair were the cause of most briefs being issued, particularly in the period after 1660 when Charles II took a more liberal stance to issuing briefs than had been seen under the Protectorate.\textsuperscript{60} Thus, pleas for charitable collections made to central or county authorities were uncommon sources of assistance after large floods.

One area in which central government did financially assist flood-stricken communities was through the remission of taxation. Such benefits in-kind were usually

\textsuperscript{53} Walford, \textit{King’s Briefs}, pp. 25–26.
\textsuperscript{55} Bewes, \textit{Church Briefs}, pp. 269–299.
\textsuperscript{57} Alex D.H. Leadman, ‘Five East Riding Churches’, \textit{Yorkshire Archaeological Journal}, 16 (1902), pp. 258–304, pp. 266–269. One of these was for the village of Bobbio Pellice, in Piedmont, where moneys raised funded a new dyke to protect the village after flooding in 1738. The brief was circulated in aid of the Vaudois protestant community there who subsequently named their new dyke after Oliver Cromwell. See Sugiko Nishikawa, ‘English Attitudes toward Continental Protestants with Particular Reference to Church Briefs c.1680–1740’ (University of London PhD Thesis, 1998), p. 19.
obtained by petitioning the privy council through county or borough officials. In the wake of damaging wind and rain storms in the early 1570s, and wet weather in the 1590s, six Cambridgeshire fenland villages were exempted from paying parts of fifteenths and tenths granted to Elizabeth. The Lincolnshire villages of Mablethorpe, Withern, Strubby, and Maltby were exempted from the monthly levy issued by Parliament for the defence of the county during the civil war in 1645. Other areas felt the strain of wartime billeting, levies and flooding and appealed to the Lords for a remission of taxation. Where the crown was landlord, it might forgo rent owed when inhabitants were struggling after times of flood, as it did for its estates in Sutton Marsh and Terrington, when coastal flooding stuck the Lincolnshire and Norfolk coasts in 1671. The Lord Treasurer would not however stretch to paying compensation as recompense for losses suffered on crown estates, and refused to pay for the re-embanking of Sutton Marsh in 1676.

Many of these kinds of appeals were made through intermediary levels of government. The Lords Lieutenants were often the mouthpiece through which local afflicted communities communicated with central government. Lord Lieutenants represented ‘the Crown to his district and his district to the Crown’, and acted as a mediator between the two. Victor Stater has shown how the majority of early-Stuart Lords Lieutenants were either Privy Councillors or held one or more places at court, giving them excellent access to the Council and the monarch in an age when resolving local grievances in Parliament was uncommon.

Nathaniel Bacon, MP and deputy lieutenant for Norfolk was petitioned by his constituents for aid after

61 CSPD, cclvii, p. 52.
63 Lords Journal, ix, p. 34, p. 118.
damaging flooding in Marshland, on the North Norfolk coast. Unaware of its failings, they sought a parliamentary committee modelled on the one summoned to remedy flooding in the south west, a charitable contribution ‘ownt of some other parts of the realme, who are not subject to the like daungers’, and failing this to be ‘eased of those usall charges which is dayly payed out of this place’. They likewise petitioned the knights of the shire to solicit on their behalf for funds to relieve £10,000 worth of losses sustained by seven Marshland villages.68 The Earl of Hertford, Lord Lieutenant for Somerset, Wiltshire and Bristol received several letters from his deputies in the years following the 1607 flood seeking allowances in the wake of significant losses. In 1609 the deputies for Somerset, including Maurice Berkeley, requested the staying of the muster due to the losses suffered by inundation and dearth, and in 1611 and 1612 the mayor of Bristol and the Somerset deputies appealed for exemption from the royal loan, citing ‘unspeakable losses receaved by the late miraculous inundacion’.

Hertford’s attachment to both his central source of power and his local source of authority meant he could satisfy neither court nor country, acting to ‘bring those within that taxe that were better then able to beare yt’ in Somerset and respecting the ‘divers losses and penuries... lately suffered’ in Bristol.70 In Essex, the Lieutenancy, in conjunction with the Subsidy Commissioners appealed to the Council that the county could not pay its full contribution to the subsidy, as there had been ‘such a breach and inundation upon the richest partes of this countie which lyeth upon the sea coast and the ryver of Thames as the losse amounted unto some private men to the value of one thousant pounds.’71 In subsequent years they complained of ‘the losse of nere £40000 in the sea walls within late yeares and the decay of rents generally is much impoverished.’72 Appeals through the Lieutenants were however only ever partially successful, and succeeded only in averting the worst compounding of hardship by reducing payments due from affected areas. Caught between the centre and the localities, as regional ‘brokers’, Lieutenants could only equivocally assert local interest against central policy.

69 Murphy, The Earl of Hertford’s Lieutenancy Papers, p. 152, p. 184, p. 189.
70 Ibid., pp. 197–98; Stater, Noble government, p. 31.
72 Ibid., ii, p. 230.
The response of central government was most effective when devolving power back to the localities affected by flooding. The Commissions of Sewers were the most common form of local body authorised by central government, but others were issued for specific purposes. Commissions of Oyer and Terminer were used to determine flood defence responsibilities, and were a common medieval solution to extra-manorial dispute settlement, and were used in Kent during the thirteenth century.\textsuperscript{73} Monastic estate administration also dealt with flood control and irrigation in the years before any commissions or statutes of sewers were issued.\textsuperscript{74} In Norfolk, a unique ‘Sea Breach Commission’ was instituted after damaging flooding on the east coast in 1608. Petitioners had initially approached their deputy lieutenant and MP Nathaniel Bacon in May 1607 after flooding that year, yet it took more inundations and nearly three years for a Norfolk sea breaches bill (itself not addressing the financial needs of the region) to be presented and reach committee stage in the House.\textsuperscript{75} Once in the house it was swiftly passed, after only four months.\textsuperscript{76} Much like the Commissions of Sewers, the Sea Breach Commission used a jury, had the power to levy rates, distress and sell goods, impress workmen and confiscate land, yet their powers were limited to addressing coastal flooding, and were designed to be used to defend the cliffs, banks and coastal lands from the ‘rage and violent beating of the Sea’.\textsuperscript{77} This was a temporary, \textit{ad hoc} body designed to respond to immediate local need, yet continued to operate into the eighteenth century.\textsuperscript{78}

Unlike other commissions, Commissions of Sewers were issued to address problems

\textsuperscript{74} Andrew Wareham, ‘Water Management and the Economic Environment in Eastern England, the Low Countries and China c.960–1650: Comparisons and Consequences’, in Hilde Greefs and Marjolein ‘t Hart (eds), \textit{Water Management, Communities, and Environment. The Low Countries in Comparative Perspective}, c. 1000 – c. 1800 (Gent: Academia Press, 2006), pp. 9–33, pp. 17–18; These statutes are 6 Hen VI, c. 5; 12 Edw VI, c. 7; 4 Hen VII, c. 1; 6 Hen VIII, c. 10.
\textsuperscript{75} \textit{Commons Journal}, i, p. 409.
with systemic causes, and to supervise the ongoing operation of drainage. Other commissions in the period were issued for specific purposes, such as for ‘hunting’ for concealed land, or undertaking specific infrastructure work.\(^\text{79}\) They came closest in form, breadth and scope to the Ecclesiastical Commissions issued by Elizabeth in the wake of the Acts of Supremacy and Uniformity. Like the Commissions of Sewers, the Ecclesiastical Commissions enjoyed ‘a very comprehensive jurisdiction, couched in sweeping terms’, so broad in its initial statement as to ‘sanction anything whatsoever’, including powers to examine witnesses under oath, levy fines, arrest and imprison, as well as to compel specific performance.\(^\text{80}\) Discretion was at the heart of many of these commissions. The wording of Elizabethan Ecclesiastical High Commissions was so broad as to make the discretion of the Commissioners ‘supersede everything else’.\(^\text{81}\)

The principal concern of the Statute of Sewers was flooding, and the allied problems of drainage and navigation.\(^\text{82}\) The act describes how ‘outragious flowing surges of the Sea’ and ‘land waters and other outrageous springs’, along with mills, dams and other impediments placed in rivers, had caused ‘inestimable damage to the Common Wealth of [the] Realm’.\(^\text{83}\) Commissioners were to be appointed to oversee the ‘correction, repair and amending’ of decayed flood defences and nuisance fishing and milling engines. New flood defences might be made ‘from time to time as the cases necessary shall require’. The form of the defence work would be determined by evidence given on the ‘oaths of the honest and lawful Men of the ... Shire ... or [place] where such defaults or annoyances be’. This local opinion would be obtained in the form of local juries of the ‘honest and substantial’ men of the parishes. The decisions of the Commissioners would carry the full effect of law, the statute giving them

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\(^{79}\) For example, Commissions were issued to oversee the repair of Yarmouth haven and pier in 1621, to repair Bow Bridge in 1623, and to make the Thames navigable from Oxford to Burcott in 1626, The National Archives [hereafter TNA] C181/3 fols. 39, 97, 195v; Kitching, ‘The Quest for Concealed Lands’, pp. 63–78.


\(^{83}\) 23 Hen. VIII, c 5.
power to ‘make, constitute and ordain laws, ordinances and decrees’. Commissions had generous summary powers, exercised through a ‘court of sewers’; they could fine, imprison, confiscate goods, appoint officials, enforce service, assess and tax a population. These courts were very much local institutions: much like the hundred and manor courts, the upper branches of the legal profession did not argue cases here. To qualify to serve, Commissioners were to be barristers, have forty marks’ worth of land, or be resident in an incorporated town and own one hundred pounds in moveable goods. Commissions and the laws they made were to last for three years.

Amendments under Edward and Elizabeth increased the duration of commissions to five and ten years respectively. The Elizabethan amendment of the Act was significant in that it also made every sewers order perpetually valid. Under the 1532 Act, laws made by Commissioners of Sewers were valid only as long as the commission that passed them was in force – i.e. for a maximum of three years. These could be made permanent only by being enrolled in Chancery and given royal assent. The Elizabethan amendment removed this requirement and made each sewers law, verdict and decree a perpetual law enforceable by each and every subsequent commission without the need for royal assent.

Quantitative change: the ‘quickening tempo’ of governance

Commissions of Sewers brought about a significant quantitative change in the amount of government transacted in local communities, both in terms of what was done and who was doing it. This section measures some of changes to the amount of ‘government by Commission’ that occurred across the period, and in response to specific moments of bad flooding. It argues that more governing was done by more people more often when Commissions of Sewers were introduced, and that these changes were catalysed and sped up after large floods. Furthermore, whilst a degree of diversification amongst the officers of local government can be observed in the wake of large flood events, primary officeholding

86 3 and 4 Edward VI, c. 8, Statutes, iv, pp. 109–10; 13 Eliz. I, c. 9, Statutes, iv, pp. 543–44.
remained largely in the hands of the ‘middling sort’. This section thus shows how processes of state formation through Commissions and after large floods was largely similar to concurrent changes in local political engagement, differing in tempo and degree.

On a national scale, Commissions of Sewers abounded in the seventeenth century. The Entry Books of Commissioners provide an incomplete, yet nonetheless striking picture of the spread and extent of these commissions in the first centuries since the 1532 ‘Statute of Sewers’. John Sheail notes that by 1930, there were forty-nine Commissions of Sewers. An accurate figure for 1930 perhaps, but this low total of forty-nine obscures the proliferation of Commissions of Sewers in the early modern period. Between 1601 and 1673 (excepting a seven-year gap between 1646–53 during the Civil War and Interregnum) the Entry Books record that the crown and Commonwealth issued 547 Commissions of Sewers. These books are an incomplete register of commissions, with local records recording further commissions and lists of co-opted commissioners, as well as some commissions having been recorded on the dorse of patent rolls in the reigns of Edward and Mary. Once established, Commissions of Sewers came to occupy an important position in the administrative landscapes of Gloucestershire and Lincolnshire. Commissions of Sewers made up half of all non-judicial commissions issued for Gloucestershire between 1601 and 1673, and three-quarters of all those issued for Lincolnshire. Such was the proliferation of Commissions of Sewers in the sixteenth and seventeenth centuries that additional legislation was passed to ensure Commissions could be issued more swiftly. In 1549 Edward’s government made the Sewers act perpetual, in 1571 Elizabeth removed the requirement for laws made by Commissioners

87 These books are catalogued in seven volumes, stretching from 1601–1673, under the reference C181 in The National Archives at Kew. They have been categorised by subject as relating to ‘Piracy and privateering’, which is either a cataloguing error or a rather harsh judgement on seventeenth-century Commissioners.
89 Data calculated from TNA C181/1–7, ‘Chancery, Crown Office: Entry Books of Commissioners, 01 January 1601 - 31 December 1673’.
91 ‘Non-judicial commissions’ are all commissions except those of Oyer and Terminer, which were the commissions issued regularly to assist with the twice-yearly peripatetic courts of Assize that prosecuted felonies.
to be enrolled in Chancery or given royal assent, in 1659 the Protectorate re-authorized all Commissioners sitting in 1653 to continue, and the sixth act passed in Charles II’s first parliament was to ensure that Commissions of Sewers could still be issued despite the country’s current lack of a Lord Treasurer or Lord Chief Justice. It is hard then to ignore commissions whose function was to regulate environmental processes when discussing the increased use of ‘government by commission’ in the period.

After an initially slow take-up in the counties, Commissions of Sewers grew to play a significant role in the life of rural communities. This change can be assessed quantitatively through an analysis of the changing frequency of court sessions. On the whole, Commissions were unenthusiastically taken up by county elites in the first years after the passage of the 1532 Act. They were actively protested by the aldermen of York who sought to have the act repealed in 1533 as they saw it as potentially weakening their jurisdiction over the River Ouse. In 1534 a supplementary act was passed that compelled all those named in a commission to take the Commissioner’s oath, the number of refusals to swear having caused ‘dyvers commissions ... [to] remayne hitherto without effectuall execucion’. This apathy translated into the local setting in Gloucestershire as the commission operated in fits and starts and failed to take root. In the first sessions, only sixteen officials could be sworn, and between them not enough could be mustered to reach quorum, the Commissioners being ‘too few in number’. This has ramifications across the 1580s, as when the jury was summoned in 1588 the court was dismayed to find that ‘the Jurey for the moste part, since the last syttinge here being regestered are decayed’.

However, the ‘late greate hurt and damage by the rage and overflowing of the sea’ in

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95 Gloucestershire Archives [hereafter GA] D272/1/1, ‘Gloucestershire Court of Sewers, General Minutes 1583–1606’, p. 3.
96 Ibid., p. 10.
January 1607 caused the Commissioners to reinvigorate the institution. The Commissioners met to find again that ‘divers named in the former Commission are dead and some departed out of the county’, and sought permission to co-opt new Commissioners and new jurors.97 Their efforts in the wake of the 1607 flood are striking. Between the earliest meetings of the Elizabethan Commission in 1583, until the flood of January 1607, the Commissioners of Sewers sat just twelve times, failing to meet in seventeen of these years. From February to December 1607 the court sat on twenty-four occasions, making it the most active court in the county, busier even than the county courts that sat every four weeks.98 This huge spike in the activities of the court is anomalous, and more than double the next highest number of sessions in a single year, 1661. However, this great flurry of activity in 1607 did have a lasting impact. As figure 5.1 shows, meetings of the Court of Sewers continued to be much more frequent after the devastation of 1607. Between 1607 and 1705, the court failed to meet in only sixteen years for which records survive. In twenty years after 1607 the Gloucestershire Court of Sewers met more frequently than the much-studied Quarter Sessions and Assizes at which routine justice was dispensed. It is clear that after the damaging consequences of the 1607 flood, and the experience of rectifying some of its negative effects through the Courts of Sewers, Gloucestershire residents took to codified, legally binding flood defence administration to an unprecedented degree.

97 Ibid., p. 21.
A similar story can be told for Lincolnshire. Courts of Sewers remained relatively infrequent throughout the mid-sixteenth century. In the later 1560s the east coast of England, and the North Sea region more generally, saw increased storminess, culminating in serious marine flooding in 1570. In 1570 the Netherlands suffered its worst ever flooding (until 1953) after The All Saint’s Flood inundated the entirety of the Dutch coast. In eastern England 60 ships were driven aground between Newcastle and The Wash. The Lincolnshire village of Mumby was reduced to three houses, and its chapel was swept into the sea. Just as in Gloucestershire, meetings of Courts of Sewers increased after these disastrous floods, and again failed to return to low pre-flood frequencies in the aftermath. In the seven years from 1566 to 1572, twenty-eight court sessions were held in the parts of Holland, out of 108 in the years 1539 – 1603. The climax of these unusually stormy years, 1571, saw an unprecedented eight sessions held. In the post-1571 era only three years saw no court sessions, whilst there were seventeen years between 1539 and 1570 that saw no sessions held. In both of these midland counties it then appears that having intensively used Courts in response to disastrous flooding, neither turned back to previous local administrations in quite the same way.

The amount of business transacted in the court further emphasises this picture of an

99 Thomas Knell, A declaration of such tempestious, and outragious fluddes, as hath been in diuers places of England. 1570 (London, 1571).
100 Holland Sewers, i, pp. xxxviii-xl ix.
enthusiastically administered and popularly consented to organisation. In like manner as the
number of sessions, the amount of business before the Gloucestershire Court of Sewers
increased hugely during 1607. Just 129 repair orders were made in the first twenty-four years
of the Commission’s existence, spiking dramatically to 308 during 1607. A general increase
from the pre-flood commission occurred from 1608 onwards, an average of forty orders a year
were made between 1608 and 1705. It is clear that the court increasingly became the venue
for the arbitration of flood defence disputes, where the need for new defences was identified
and articulated, and where individuals and communities were compelled to carry out work.
The speed and scale of the Commission’s work was impressive. Of 308 orders for repair made
after the 1607 flood, 226 came in a single session six weeks on after a thorough survey of
affected land. The remainder of the year’s orders were issued in a more piecemeal fashion,
as the court sat frequently to transact small amounts of significant business, making forty-six
orders in seven sessions. The flexible and discretionary nature of the Commissioners’ powers
is apparent here. Headed by large, landowning families, and staffed by the larger yeoman
farmers of the afflicted area, the court could respond to local need and convene to take swift
action against offenders whose neglect further endangered the levels. The increase in court
sessions and business alerts us to the socio-environmental problem of flooding: court sessions
increased not solely because of damaging flooding, but because neighbours sought to compel
each other to repair and maintain flood defences and drains. These powers of compulsion were
fully utilised in times of crisis. In his widely used manual for county administrators, Michael
Dalton emphasised the limited powers of the Commissions in normal circumstances, until
‘tempest or unusual overflowing of waters’ legitimised wider and more far reaching action. The Court of Sewers, a provincial arm of the state, was seen as the legitimate intervening force
through which to react to damaging flooding.

Commissioners were to be wealthy resident landowners who could act indifferently
in disputes between neighbours. By the Sewers Act they had to hold property worth at least
forty marks per year, which was increased by Elizabeth to £40 per year in 1571, as well as the

101 GA D272/1/2, ‘Gloucestershire Court of Sewers, General Minutes 1606–1615’, fol. 4v-16v.
stipulation that they were resident in the counties in which they operated. The lists of members of the Commissions are long, and much like parliamentary committees, contained the names of many men who never served.

In Gloucestershire, early commissioners included the lords Berkeley and Chandos, the leading peers in the county. The rest of the Gloucestershire Commissioners were drawn from the local nobility and upper gentry families (much like the Justices of the Peace) and frequently had family ties to the Berkeleys. The Lords Berkeley resided at Berkeley castle in the heart of the vale to which it lent its name. Leslie Zweigman has shown how in the later sixteenth and early seventeenth century, ties of cozenage united many of the leading gentry families in the Vale area, often through the main or cadet branches of the Berkeley family. Long-established families of the upper-gentry were represented, including the Baynham and Throckmorton families of the Forest of Dean, the Butler family of Badminton, the Pole family of Sapperton, the Poyntz family of Iron Acton, the Stafford family of Thornbury, the Stephens, the Dennyses and several others. Some of these leading families also served as Ecclesiastical Commissioners in the 1570s. However, in contrast to Zweigman’s findings for other local offices in the later seventeenth century, the traditional families of the County did not continue to dominate the Commission in the post-restoration period. The Commission of Sewers issued in November 1671 lists eighty-four Commissioners, of whom only twenty-seven are listed by Zweigman as among the forty major gentry families of the county. Looking at Commissioners who actually served, rather than those who were merely named in the Commission shows a further erosion of the core county community. Only four out of twenty-one commissioners who sat in three sampled sessions in 1675, 1676, and 1680

105 Gleason, *The justices of the peace in England*, p. 120.
109 Zweigman, ‘The role of the gentlemen’, pp. 1067–68
were from the forty top ranking gentry families.\textsuperscript{111} As the barriers to entry for commissioners shrunk as sterling decreased in value, a role as Commissioner of Sewers became open to more of the ambitious upper yeomanry and lower gentry.\textsuperscript{112} Their use as a stepping-stone is clear in the early eighteenth-century when we find Commissioner John Hicks attempting to excuse himself from his duties as Chief Constable of the Hundred of Grumbold’s Ash (Gloucestershire), his Commissioner colleagues finding it ‘not consistent with the Honour of this Commission for him to serve’, claiming him ‘priviledged from the said office of Constable and from such inferiour Offices’.\textsuperscript{113} Commissions of Sewers were undoubtedly less prestigious than Commissions of the Peace, the Lord Lieutenancy and other central commissions, yet they presented an entry point to local administration for rising families with little history but adequate wealth.

Despite the importance of Commissioners in the decision making process, sewers juries conducted most of the business of the newly invigorated Courts of Sewers. As with other juries, participation on a jury was both ‘the price of social privilege’ for the better sort, but also a valuable marker of social status.\textsuperscript{114} Unlike other juries however, Sewers juries relied on intimate local geographical and historical knowledge to function. Like the Mine Court juries of the Forest of Dean, they required an understanding of a complex tissue of rights, obligations and environmental processes that rendered the landscape ‘illegible’ to outsiders.\textsuperscript{115} Thus, unlike the juries of Quarter Sessions so well described by Herrup, they served less as a means for incomers to distinguish themselves, and more as a vehicle for the established to further their esteem.\textsuperscript{116}

They were to meet outside of court sessions ‘to take view & survey of the defaults’ in sea defences and drainage, and then meet at the court to offer their ‘true presentment’ of these,

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\textsuperscript{111} GA D272/1/13, ‘Gloucestershire Court of Sewers, General Minutes, 1671–1684’, unpaginated, sessions of 29 September 1675, 30 October 1676 and 5 April 1680. These four were Edward Smyth, John Smyth, Thomas Stephens and Thomas Veel.
\textsuperscript{112} Zweigman acknowledges the fluidity between these ranks, ‘The role of the gentlemen’, p. 106.
\textsuperscript{113} GA D272/2/2, ‘Gloucestershire Court of Sewers: Upper part minutes, 1699–1714’, unpaginated, following session of 8 August 1704.
\textsuperscript{115} Simon Sandall, ‘Custom and popular senses of the past in the Forest of Dean, c. 1550–1832’ (University of East Anglia Phd Thesis, 2009), p. 52.
\textsuperscript{116} Herrup, The Common Peace, p. 97.
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and to inform the Commissioners who ought to remedy them.\textsuperscript{117} The jurors’ oath makes their social, legal, environmental and judicial roles very clear. In September 1646 jurors were to swear that

you shall well & truely survey and enquyre of all the breaches and decayes wch have happened and comen by the rage or overflowing or reflowing of the River of Seavorne within the [blank] Levell and of all the ditches trenches Seawalls Sewers gutters gotes Calcies bridges mills, ponds, milldames flulldgates, locks weers and other anoyances letts & ympediments of ye flowing & reflowing of the same River of Seavorne & of the fresh waters within the said Levell and what person ought to repayre the same and by whose default & by what meanes ye said breaches decaies and overflowinge hath happened and who wor what persons are like att any tyme or tymes to repaire anie losse or damages by reason of those decayes breaches or overflowing. And who hath or holdeth any lands meadows Commons pastures fishings or other benefitt or profitt within the said Levell And to make true presentment thereof from tyme to tyme & att such place & places as you shalbe requiyred by the Comissioners of Sewers dureing the tyme as the Comission shalbe in force And further to enquyre & present concerning the premisses according to the Statute of ye 23th yeare of King Henry the 8th in yt case made & provided & mencioned in ye sead Commission.\textsuperscript{118}

Working on the jury was not always a welcome task. Minutes of Sewers Sessions record fines being issued to men who refused to attend sessions and take part in the jury when nominated.\textsuperscript{119} Reluctant jurymen could prove obstinate and difficult to assemble even when they had undertaken their surveys. The Gloucestershire Commissioners fined gentleman juror Peter Hawkeworth five pounds in October 1631 for ‘being in ye howse of this meeting [yet] being called did not appeare’\textsuperscript{120} Being a juryman was an arduous task. If members of the jury were not dying in between court sessions, as at Gloucestershire in the 1580s, they were

\textsuperscript{117} GA D272/1/3, ‘General Minutes, 1615–1631, 1635’, fol. 31r
\textsuperscript{118} GA D272/1/5, ‘Gloucestershire Court of Sewers, General Minutes 1646–1648’, fol. 2v.
\textsuperscript{120} GA D272/1/3, ‘General Minutes, 1615–1631, 1635’, fol. 97v.
undertaking a lot of work; instructions given to jurymen in the early 1660s spoke of the assembled ranks of jurors at Spalding as ‘Men grown Gray in this imployment’. The extra work the court engaged necessitated a greater number of people acting on behalf of the state. The growth of the early modern English ‘participatory society’ is typified by the rise of the number of people engaging with Courts of Sewers as jurors. The popularity of the court necessitated moves to the town hall in Berkeley for its larger sessions. Some were so busy and loud that the commissioners enlisted the services of a court crier to keep order during the session at Chipping Sodbury in April 1646.

Analysis of the social status of some of these jurors shows that they were firmly of the ‘middling sort’. When recruiting jurors, Commissioners requested they be sent the ‘very sufficient’, ‘honest and substantial men’ of the manors liable to flood. The ranks of Commissioners and jurors were thus made up of men of differing social status. Amongst the Commissioners were manorial lords, the very wealthiest yeoman farmers, members of the peerage, and members of parliament. In contrast, the juries were made up of men of good credit and standing at the level of their local communities, deemed ‘good and lawful’ by their immediate neighbours. These were men of the ‘middling sort’ who came to play an increasingly important role in government in this period, and who conducted the face-to-face, interactive tasks of government. Earlier sixteenth-century juries can be hard to socially profile. With Commissions of Sewers only sporadically used in Gloucestershire, few jury lists survive. In the Spalding Commission of Sewers in Lincolnshire there is a different problem. Juries here operated under more flexible arrangements based around one or two lead jurors,

125 GA D272/1/1, ‘General Minutes, 1583–1606’, p. 34; GA D272/1/3 ‘General Minutes 1615–1631, 1635’, fol. 2r.
127 Ibid., fol. 57v.
who were named, and assorted other men named only as ‘their fellows’. The practice of naming juries in this manner continued until 1623.129

Full jury lists do survive from the 1580s in Gloucestershire. Cross referencing these with taxation records and military surveys reveals that jurors were mainly drawn from the ranks of the lesser yeomanry and more substantial husbandmen.130 The eighteen jurymen that served the refreshed Gloucestershire 1588 jury contained only five men that did not qualify for the lay subsidies of either 1585 or 1592. The subsidy was payable by all who held lands worth £1 per annum or held goods worth at least £3. Subsidies almost invariably undervalued property holdings so as to minimize the tax liabilities of those assessed.131 Comparing the subsidy payments of the jurors liable for goods with those of the wider population of the administrative divisions of Berkeley, Grumbald’s Ash, Langley and Swinehead, Thornbury, Henbury, Pucklechurch and Barton Regis shows they were a remarkably representative sample. Jurors held on average £4 15s 5d of goods, whilst the wider population of subsidy payers held an average of £4 2s 6d. These were then very much men of what historians have termed the ‘middling sort’, amongst whom were found ‘small knots of reliable men’ who served on local administrations.132

In Gloucestershire, the flooding of 1607 had effects on the social makeup of the commission. The massive increase in the business of the court brought with it swathes of new jurors, and many new Commissioners. During 1607 alone, 204 new individuals became active within the Commission of Sewers. This is striking, as until this point just 125 individuals in total had staffed the court, including those who died in-post. Of the 204 new officers, eighty per cent were jurors, and twenty per cent were Commissioners. The number of men sworn to serve as Commissioners more than doubled with the addition of the 1607 appointments. This increase points to a reversal of the contemporary trend of the landed gentry absenting themselves from the business of local government, here in a period of crisis. The most

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dramatic increase came in the number of jurors sworn, with more than triple the number of men entering into the Commission in the eleven months of 1607 after the flood than were enlisted in the previous twenty-four years.\textsuperscript{133} As the necessity for frequent and urgent court business subsided after 1607, popular involvement with the Commission remained strong. In the twenty-four years after the flood, engagement with the court was much higher than before, with sustained higher levels of recruitment across all offices. Having cemented its position as the primary flood defence agency in the county, the commission remained a participatory and fluid institution, one in which hundreds of local men took their turns to serve.\textsuperscript{134}

The increased business of the commissions in post-disaster situations introduced a limited amount of diversity into the juries. Using the military survey of 1608, we can look at the occupations of identifiable jurors.\textsuperscript{135} The military survey was a thorough census of the males of Gloucestershire intended to assess the military capabilities of the nation at large, as well as the potential for raising further taxation. It recorded the estimated age, physical stature, occupation, location, and name of every male in the county, along with whether they paid towards lay subsidies and whether they owned any weaponry.\textsuperscript{136} Of ninety-one jurors sworn in to serve the commission in November 1607, sixty are identifiable in the 1608 survey. Among these were twenty-two yeomen, twenty-two husbandmen, and eight gentlemen, along with a butcher, a weaver, a mercer, a shoemaker, a servant, a mariner, a carpenter, and a baker. Although heavily dominated by more prosperous agricultural landholders, a degree of occupational diversity was introduced with artisans and wage labourers. Furthermore, a smaller percentage of the new 1607 jury contributed to the lay subsidy. Only forty-eight of the ninety-one jurors paid towards the 1608 subsidy, a smaller proportion than in 1588. Those that did pay were again representative of the local average, holding an average of £3 8s 5d in goods, whilst the population average was £3 5s 6d.\textsuperscript{137} There was then a degree of

\textsuperscript{133} 164 sworn in 1607, compared with 52 in the period 1583–1606.
\textsuperscript{135} John Smith, \textit{Men and Armour for Gloucestershire in 1608} (Gloucester: Sutton Publishing, 1980).
\textsuperscript{137} The general depression in the value of total goods held between 1588 and 1608 could be attributed to the affect of the 1607 flood, yet assessments are notoriously difficult to compare across time.
diversification in times of imminent need. More people, from a broadened (but not necessarily broad) spectrum of society served on juries after damaging flooding. These new social distinctions were acknowledged in the information juries provided. When dealing with the most contentious demands for flood defences, the Gloucestershire Commission deferred to the opinions of professional surveyors and the ‘chiefest and substantielest of the Jury’ when deliberating.\(^{138}\) As diversity increased, so did the identification of social gradation within juries.

Whilst the juries were made up of a reasonably representative sample of the landholding and wealthier members of village society, numerically significant groups were left out of water governance. Women were excluded from jury service as a matter of course. This was as true in the Commissions of Sewers as it was in the Courts of Assize and Quarter Sessions. Women were not permitted to sit on juries until the 1920s in England. This was a significantly disenfranchising stipulation, as women were often property owners.\(^{139}\) Religion could also be an excluding factor, particularly from the mid seventeenth century. Quakers, the radical preaching sect established by George Fox during the 1640s, refused to swear oaths as a matter of faith and conscience. This necessarily precluded them from serving on juries, as they would not take the juror’s oath. Quakers were also excluded from Sewers courtrooms because of their refusal to remove their hats in reverence to their superiors – in this context Commissioners of Sewers.\(^{140}\) John Harvey of Spalding, for example, was required to find a replacement dikereve and juror as he would not serve, on pain of a five pound fine, and was subsequently fined a further five pounds for not removing his hat, the court bailiff eventually doing so on his behalf.\(^{141}\) This potentially excluded a significant number of people, particularly in Lincolnshire, which was the site of significant religious dissent in the seventeenth

\(^{139}\) One juror, ‘Launderess Taylor’, who served three times from August 1635, is potentially a woman, but would be just one woman in over a century of all-male juries.
\(^{141}\) LA, Spalding Sewers/451/1, ‘Sewers Entrys. John Johnson Clerk 30 Oct 1667’, fol. 44.
Furthermore, copyhold tenants were excluded from being members of the jury. Copyhold tenants held land under a customary agreement with the manorial lord. At a time of rising prices, copyhold leases were under attack from manorial lords who sought to increase traditionally low rents to closer to market value. Tensions between lords and copyhold tenants led to their exclusion from juries. Even being related to a copyholder was enough to disqualify potential jurors. In January 1626, John Baker and William Jones were discharged from the jury on the request of the Lord of Thornbury because ‘they have each of them a sister married to a copyholder of the manor of Thornbury’.

Changes that took place after damaging flooding were part of wider and longer trajectories in early modern English social and political history, which were here rapidly accelerated and catalysed by catastrophe. Social solutions had to be sought to environmental problems, problems that were themselves exacerbated by wider social and economic forces. The ‘hazardous landscapes’ of Severnside south Gloucestershire, and Holland, Lincolnshire had to be negotiated concurrently with the complex webs of custom, right and obligation that also coloured local society. Turns towards a regularised system of flood defence management in the wake of serious floods meant that more orders could be made to compel more people to maintain flood defences more often. The post-flood growth of commissions also allowed greater numbers of local people to influence their decisions, in turn fostering the growth of the state. Commissions of Sewers represent instances of the ‘popular, though nonetheless circumscribed’ nature of political participation alongside the ‘incorporative nature of state formation’ in the Tudor-Stuart period. They are an example of how the early modern English state grew in response to environmental stimuli, and how this growth was mediated by many of those it directly affected.

The conclusions reached here may seem somewhat obvious. If a community is affected by flooding, is it not natural for it to respond to that flooding by attempting to regulate

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143 E.g. in 1646 Richard Adams was ‘spared’ jury service ‘being a Customary tenant of Thornbury and Oldbury’, GA D272/1/5, ‘Gloucestershire Court of Sewers General Minutes, 1646–1648’, fol. 3.
activity in the waterscape and ensure flood defences are well maintained? On a fundamental level, yes. To grossly oversimplify, flooding and flood risk drove communities to manage flood defences. This is a logical, and straightforward point. What is less straightforward is the process by which this happened, and the outcomes of that process. Communities came to regulate flood defences through the state. There was a collective drive to manage property between a diverse set of owners and occupiers with recourse to the resources of the state. This is as opposed to regulating flood defences with recourse to the resources of the manor, or the parish. Parochial and manorial flood defence management still took place (see chapter one), yet a higher authority was also now available for disputants. A court with wider coercive powers, backed by statute and sanctioned by the Lord Chancellor now regularly operated in the county, and was enthusiastically assented to.

Court orders can also give some indication of both the social and the environmental problems faced by riverside residents in the period. The court functioned as a director of major projects and an arbiter in cases of neglect and disagreement. The ‘dark figure’ of flood defence and drainage works not transacted through the court remains unknown – those carried out by flood-conscious, public spirited, financially and physically able residents who did not require the compulsion of a court to move them to maintain their property. The court’s minute book records only repairs necessitated by a lack of action by landholders, for whatever reason. The court also ordered work to be done by (often uncooperative and highly begrudging) individuals that had scope beyond their own immediate safety. It is the nature of flood defences that they need to be uniformly sufficient: a breach in even a small section of sea wall can cause the inundation of acres of low-lying land in the Vale of Berkeley, rendering the perfectly kept sections of the majority useless in the face of the poorly kept sections of the few. The need for an order could then stem from environmental as well as social problems, problems that

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146 Hundredal oversight over channel scouring continued in the Lower Level, in the Hundred of Henbury. See Bristol Record Office, AC/M/12/1, ‘Court book: Proceedings of the Hundred Court of Henbury and of the Court Baron held for the manors of Westbury Bryans alias Westbury-on-Trym, Stoke Bishop, Henbury, Olveston, Twyninge, St.Lawrence (being the estates of the dissolved leper hospital near Bristol), and also of Allesborough in Worcestershire, all which manors belonged to Ralph Sadleir who inherited them through his father, Thomas Sadleir, from his grandfather, Sir Ralph Sadleir. They formed part of the dissolved monastic lands granted to Sir Ralph Sadlier by Letters Patent of 35 Henry VIII and 1 Edw.VI, 1608–18’, passim, esp. fols 7–13v.

having been instigated by environmental factors then went on to became acutely social, and vice versa. The increase in the number of court sessions and orders over the period, spiking after major disasters, is a measure of the increasing socio-environmental problem of flooding, and the increasing willingness of local residents to address those problems with recourse to a statutory authority.

**Qualitative change: the codification of custom**

The involvement of so many more people so much more frequently brought about not just a quantitative, but a qualitative change for the State. Wayne te Brake and Karl Appuhn have argued that the involvement of local, non-elite people had an impact on the kinds of political organisation that the state could manage. The increased activity of jurors provides an example of te Brake’s argument that ‘ordinary people’ did not just work for and with the State, but that their ‘popular political practices’ played a creative role in shaping the kind of State that was formed.  

Likewise, Appuhn has shown how in renaissance Venice, a ‘rationalizing’ state forest management policy was ‘the product of local knowledge and problems, rather than an overarching plan or an overreaching centralized state’. Histories of non-European rivers have demonstrated the importance of local knowledge, working in conjunction with states, in water management. Similar practices can be observed in early modern Commissions of Sewers. The local, oral, and customary forms of knowledge that newly incorporated local people brought with them had an impact on the forms of government that took root in the localities.

Courts of Sewers became repositories of customs regarding the management of flood defence and drainage works. This was largely due to the methods employed by the jurors who conducted most of the Commissions’ work ‘on the ground’. Typically when juries were sent out to ‘survey, reform and peruse’ or make ‘viewe & survey’ of defaults in flood defences and

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drains they did as much talking as they did looking.151 Their reports were based on a series of interrogatories, not unlike those issued under commissions of inquiry, which relied on a combination of site assessments and interviews with local people. In the process of these investigations, juries gathered a great deal of oral and customary evidence relating to landholding and flood defence practices. They then presented this orally. The formulaic records of Sewers sessions compress much of the individual detail of presentments, but we get a glimpse of the oral nature of the court in 1618, when the clerk noted ‘the Jurye for the upper part presented in the words, that is to say...’152 As discussed in chapter three, custom was predicated on practices having existed ‘for time out of mind’, structured the ‘lived environment’ and the ‘knowledge systems which governed life’ in rural communities.153 Custom, a form of collective memory, or the ‘memory of the people’, was not a fixed store of information, but was instead malleable, constructed and reconstructed as a ‘usable past’ for establishing rights and liberties.154 Many repair verdicts given by juries demonstrate the importance of custom at a local level, being directed to ‘all that of right ought to or to whom it doth apperteine’.155 The court also enforced customary duties, requiring individuals to make repairs ‘as [they] ought to make’.156 With their absence of specificity, presentments and orders in local disputes appealed to popular memory, revealing the importance of implicit local understandings of customary landscapes of obligation and right. As J.M. Neeson has shown, if ‘going to law in the eighteenth century required a long purse, breaking by-laws required a thick skin, and more’. Similarly, before their pursuance before the Commission of Sewers, sixteenth- and seventeenth-century flood defence customs would have been regulated in the more local and personal setting of the manor court, or through ‘the subtle and not-so-subtle

152 Ibid., fol. 25r.
156 Ibid., fol 13v.
The reliance on memory, live oral testimony and peripatetic, dialogic surveys points to a strong oral culture among jurors. Mark Netzloff has written about early modern surveyors and their ‘social role’, concerned as much with talking with tenants as with consulting documentation. Here we see this manifested at a level below the professional surveyor, amongst the middling and upper yeomanry. It also hints at the performative nature of government in the period. Getting decisions right was clearly a priority for sewers jurors, but they were also concerned to be seen (and heard) to be getting decisions right. Given that their power rested on popular consent to their authority, working out solutions to flood defences in public, and amongst neighbours, would have been a more visibly legitimate method of dispute resolution than being shut away in the clerk’s archive. As such, lamenting the loss of Commissions’ authority in their region, the inhabitants of the Soke of Peterborough emphasised that juries were ‘the life of the Law, and the peoples just freedome’. Offenders would be aware of their defaults, and the status of the jurors would be preserved, by being seen to perambulate, discourse and survey people and land. There are significant overlaps with the practices of early Dutch water boards (‘Waaterschappen’). Medieval Dutch Hoogheemraadschappen (bodies roughly equivalent to Commissions of Sewers, tasked with ensuring flood security through drainage and dike maintenance) conducted their business out in the open, often on the very dikes they were discussing, symbolically marking out the ‘space’ of the court room with a rope on the ground. In both circumstances degrees of communal participation and communal consent are incorporated within the institutions’ governing

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159 Anon., The humble petition of the inhabitants of the soake of Peterborow, within the county of Northampton, containing about forty townes and villages, against the undertakers there: with exceptions to their act; setting forth how and wherein they abused the Parliament by their false suggestions; and a relation of a new reviving of an old court project terribly to threaten those who oppose selfe-ended designes (London, 1650), p. 4.
160 The Great Hall of the Gemeenlandshuis (headquarters) of the Hoogheemraadschap van Rijnland (Rhineland Water Board) preserves the memory of this practice. The ceiling is painted with a blue sky scene with birds and clouds, symbolizing the open nature of the court and referencing its open-air origins. ‘Grote Zaal - Virtuele rondleiding Gemeenlandshuis Leiden’ <http://www.gemeenlandshuisleiden.nl/> (accessed 30 March 2015).
practices. Such communal legitimacy was a key factor in securing the consent of communities to a variety of other juries in the medieval and early modern periods.\footnote{161 James Masschaele, \textit{Jury, State and Society in Medieval England} (New York: Palgrave Macmillan, 2008), pp. 205–10.}

Customary responsibilities made sense among the ‘community of talkers’ in which they were generated and applied.\footnote{162 Wood, \textit{The Memory of the People}, p. 272.} However, as Simon Sandall, James Scott, Andy Wood and others argue, fixing oral customs in text changes their function. For Scott, ‘the moment a spoken text... is frozen in writing as preserved speech, it effaces most of the particularity of its origin’, with the new physical form of the word capable of being ‘suddenly ... dug up and consulted as an authority.’\footnote{163 James C. Scott, \textit{The Art of Not Being Governed: An Anarchist History of Upland Southeast Asia} (New Haven: Yale University Press), p. 272; Sandall, ‘Custom, Memory and the Operations of Power in the Seventeenth-Century Forest of Dean’, in Fiona Williamson (ed.), \textit{Locating Agency: Space, Power and Popular Politics} (Newcastle: Cambridge Scholars Publishing, 2010), pp. 133–160; Nicola Whyte ‘Landscape, Memory and Custom: Parish Identities c. 1550–1700’, \textit{Social History}, 32, 2 (2007), pp. 166–186.}


Yet documentary recording of custom ‘fixed in text for posterity what memory had been able to forget and circumstance to forgo’, leaving texts as an ‘unflinching reference point against which any future alterations in practice could be measured.’\footnote{165 Fox, \textit{Oral and Literate Culture}, p. 293.}

Despite the apparent fixity that texts could give flood defence responsibilities, jurors continually resorted to the use of oral testimony. It would be quite possible to imagine that after each sea wall, ditch or outfall had been presented in the court, juries’ opinions would be obsolete: with custom recorded, the court would be able to refer to its own records and enforce regular and consistent duties from its constituents. Yet this did not happen. Jurors eschewed reference to their own records when making routine presentations of defaulters. On several occasions, witnesses were sworn to testify as to the proceedings and outcomes of previous court sessions. In May 1654 at the Gloucestershire Court of Sewers Richard Mathews and
Phillip Adams came to testify to the fact that John Baker of Thornbury ‘did att a certayne meetinge of Sewers for the County of Glouc make Oath’ regarding the sea wall at Oldbury, which was subsequently ‘entred by the said Mr Baker then Clerke unto the Coms in the Sewers booke’. Likewise, in 1702, seventy-six year old yeoman Richard Wither from the parish of Redwick and Northwick testified that seaventeene yeares agoe hee served upon A Jury of the Sewers and was then ordered by the Comissioners of Sewers to try and end A certaine dispute about the repaire of a certaine parcell of Seawall in difference between Sir John Fust and John Wilkins lyeing att Hill and hee this deponent with the rest of the Jury Did then give their presentment and said the charge of the repaire of the said seawall on Sir John Fust.

The evidence Mathews, Adams and Wither all cite survives in earlier minute books of the court. Eschewing its own textual archive, the Commission of Sewers placed greater significance on the memory of those who had been involved with it. Amongst the ‘community of talkers’ that the juries frequently represented, oral testimony held the most sway.

Written records were only consulted in moments of absolute uncertainty and controversy, and were rarely left just to speak for themselves. Disputes over Oldbury’s sea walls saw both parties present ‘learned Counsell’ and ‘proofes by them produced out of this ancient Court Rolls & Records of the Mannor of Thornbury’ presented to the Court in September 1619. The records were interlocuted by lawyers, and four gentlemen were ‘sworne & examined for the Testifying of the Records & Court Rolls’. Where customary responsibilities were unclear, misremembered or contested, having a document could prove particularly useful, as they offered an image of fixity, and a seemingly direct line to a past of legitimate evidence. William Yonge was able to exploit this in January 1618 when he brought forth a manor court roll from the reign of Henry VI to discharge him of maintenance repairs.

167 GA D272/2/2, ‘Gloucestershire Court of Sewers: Upper part minutes, 1699–1714’, unpagedinated, session 31 August 1702.
Before being taken away again, Yonge’s Court Roll gained further historical capital as the clerk of the court of sewers copied the relevant section into the minute book for posterity.\textsuperscript{170} Records in Latin or French, like this, were esteemed ‘so much the more certain, by how much the more ancient’ by Norden.\textsuperscript{171} In April 1662, whilst attempting to conclude a six-decade long dispute over flooding caused by tidal milling, Commissioners of Sewers resorted to the ‘perusall of some ancient booke or bookes of Sewers’ to help them deliberate.\textsuperscript{172} Jurors sought to supplement oral testimony with textual precedent. In October 1676 jurors themselves requested the assistance of a number of deliberative aids, including ‘ye surveyors who have an ancient booke & some ancient Witnesses are yet liveing to guide them therein’. The surveyors were to look in the ‘ancient booke’ to decide on sea wall maintenance responsibilities, based on historical precedent, rather than contemporary innovation.\textsuperscript{173} Likewise, in 1684 jurors were advised to consult the ancient court records for the ‘more easy and speedy describinge’ of the sea walls because they ‘give most certeyne informacon’ as to who ought to repair them.\textsuperscript{174} Ancient did not usually mean particularly old. In the later seventeenth century, an ‘ancient’ book of sewers was consulted that was only sixty years old, and the oldest records cited were from the first Elizabethan commission in 1583.\textsuperscript{175}

The discovery of new documents of supposedly ancient origin that absolved an individual of responsibility for flood defence work was treated with suspicion by Commissioners. In 1676, John Hopton, Lord of the Manor of Littleton produced ‘a parchment writinge purportinge an Old Exemplificacon and not beinge evidence haveinge noe seale nor attested by Witnes to be a true Coppy of the Record’, which Commissioners rejected as proof Hopton was not liable to maintain a watercourse between Littleton and Elberton.\textsuperscript{176}

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\item[170] Ibid., fol. 26v.
\item[172] GA D272/1/10, ‘Gloucestershire Court of Sewers General Minutes, 1661–1663’, fol. 87v, Decision re: Oldbury Mills, 30 April 1662.
\item[173] GA D272/1/13, ‘Gloucestershire Court of Sewers General Minutes, 1671–1684’, fol. 63v.
\item[174] Ibid., fol. 126.
\item[175] Ibid., fol. 118; GA D272/1/10, ‘General Minutes, 1661–1663’, fol. 8, 21v. The textual record that the Gloucestershire Commission of Sewers used in the seventeenth century is largely the same as that which survives today. Volume one is badly damaged, volume nine is missing in the archival strongroom at Gloucester, and several volumes have the odd page missing, but other than this, the textual record has survived remarkably well.
\end{footnotes}
record, supposedly an exemplification of Letters Patent dating from 1389/90, was found ‘safely Locked up’ in the house of John Baker, whose maternal grandfather, Maurice Tovey, a lawyer and estate steward, had collected papers relating to local manors and parishes. The commissioners remained unconvinced as to their authenticity, as they had come to light now, forty years after Baker had succeeded the house from Tovey.177

Searching historical records that extended beyond the ‘memory of man’ to establish liability for repair then became a ‘battle for documentary proof’.178 These were battles that engaged all levels of society. Early modern parishioners were ‘acutely aware of how important it was to have constant and open access to their collective memory’.179 As tenants these same parishioners valued texts just as highly, yet were not always able to have such constant and open access to their textual history. For tenants, texts could signify both their rights and the oppression of landlords. As instruments of oppression, texts were targeted in tenant uprisings. In the early stages of the 1381 ‘peasant’s revolt’ in Essex, a crowd targeted the Abbot of Stratford, a prominent early commissioner of sewers, destroying manorial records and burning Stratford Abbey muniments, thus removing historical precedent for the forced labour on flood defences they had come to loathe.180 In Dalla, Germany, tenants rose in 1525 and destroyed the archive of their lord, leading to the lord attempting to re-establish a textual record through interviews with elder subjects in 1554.181 In 1768 at Holland Fen, Lincolnshire rioters destroyed and re-wrote the textual history of an enclosure project. Rioters seized a box containing the documents, ‘broke it open, tore them to pieces, and threw them into the streets’, proceeding to the incloser’s house, threatening ‘to pull it down if he did not sign a paper, which purported that he should never again promote the enclosure of Holland Fen’.182

Tenants had legitimate concerns when it came to access to the textual record of flood defence liability. That tenants were at the mercy of inaccessible texts is clear in seventeenth-

177 Ibid., fols. 42v-43.
178 Fox, Oral and Literate, p. 281.
179 Kümin, ‘Parishioners in Court’, p. 28.
century disputes over the Sea Wall at Oldbury on Severn. In a bill of complaint to Chancery, Oldbury tenants alleged that the Staffords withheld crucial documents, with the presentation of elder witnesses their only means of making up for this lost evidence. The tenants requested that the Staffords ‘may produce the said evidences & records & that your orators wittenesses whoe are of great age may be examined’. In another very similar suit begun against the Staffords, the tenants complained that their cause would be supported by ‘divers records now in the defendants hands’ and ‘the records of the mannors’ which the Staffords had not produced, along with the written record of oral testimony in ‘severall presentments taken before the comissioners of the sewers’.

History was invoked on a grander scale in textual disputes. Oral testimony relied implicitly on situations existing for ‘time out of mind’, extending back perhaps a generation or two beyond the age of the eldest remembering witness. Textual disputes gave disputants access to even older pasts, which again brought with them implications of access and power. Drawing on the available textual record, the inhabitants of Oldbury extracted historical precedents for the lord’s responsibility for flood defence maintenance at the boundaries of their property. They presented evidence from the reigns of Henry VII through to the present day, yet even when arguing from the same set of sources as the lords, their mobilisation of the past was cast in doubt. The lords’ counsel conceded that a precedent from 1540/1 was ‘the only particuler presentment that makes against the Lord’, yet argued that it was still not good enough for the court as

at this tyme the Mannor was in the kings hands, & then corrupcon of Customes encreased, when new officers were in place, Who not knowing the truth, were apt to take any presentment that the Tenants would obtrude upon them.

Thus even ‘ancient documents’ were still not good enough for the courts when in the hands of

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185 SRO D641/2/C/4/1/v/N, ‘Cases concerning property in Gloucestershire: Oldbury - Sea Walls of River Severn’, fol. 3.
the tenants. Such precedents required not only a historical, but a historiographical sensibility on the behalf of those using them. By colouring the very nature of the past that tenants sought to make arguments about, the Staffords were able to continue a textual dispute by further limiting the parameters of acceptable history.

Access to records then became a determinant factor in one’s ability to influence local flood policy. Access to oral tradition was itself not universal, as age, status and location limited both who could legitimately give convincing oral testimony, and who might hear and be influenced by it. Textual records brought with them new administrative and financial restrictions that shaped the ways in which decisions were made. Some of these excluded those unable to pay. In the Manor of Thornbury, tenants were charged four pence to search one year’s records for a particular order in the manor court roll. Given that precedents were brought before the Court of Sewers from as far back as the fourteenth century, searching multiple years to find historical precedents could prove costly.\footnote{186 BRO 35192/D/18, ‘Scale of fees under Customs of the Manor of Thornbury’.} In the 1670s in the Spalding Court of Sewers, the clerk charged one shilling for searching for a particular law or record of sewers, and a shilling per sheet to copy them.\footnote{187 LA Spalding Sewers 451/2, ‘Sewers Entries; John Hutchinson and Maurice Johnson Clerks, 1675–1685’, unpaginated, endpapers, ‘Fees Allowed by ye Commissioners & required & taken by ye Clerke of Sewers in ye partes & County Aforesaid’.} Whilst access could then be limited by one’s ability to pay, other, more mundane factors hindered those seeking to use textual precedent in floodplain disputes. In July 1638, Charles I was hindered in his disputes with fenland Commissioners. Sir Charles Herbert and John Latch were unable to find the ‘law of the sewers’ which appointed him the undertaker of various fen drainage projects, including that for Eight Hundred Fen in Lincolnshire, in the Petty Bag Office.\footnote{188 CSPD, ccclxxv, p. 556.}

The Gloucestershire Commissioners of Sewers were well aware that they were creating their own textual legacy. In February 1609 the court consolidated its records in the hands of its clerk Samuel Neale.\footnote{189 GA D272/1/2, ‘General Minutes, 1606–15’, fol. 28.} Its archival practice developed over the course of the seventeenth century. Subsequent clerks were custodians of the court records, which caused problems when less than diligent outgoing clerks refused or forgot to transfer their records.
over to their successors.\textsuperscript{190} From 1661 the sewers books were kept in a box, and from 1704 they were kept in a specially made chest with two locks, with keys in the custody of separate commissioners.\textsuperscript{191} The reliability of the records was paramount, such that clerks took pains to ensure they were not accused of altering the books in any way. Several leaves were cut out of the third volume of minutes, and the clerk was mindful to note that ‘These leaves were cutt out before ye bookes came to my hands.’\textsuperscript{192} Likewise, on returning the collected archive of the Commission in 1661, Edward Fust swore before the court that he had done so ‘unblotted and without alteracon without adding or diminishing to or from the same’.\textsuperscript{193} By the 1680s the court was producing records for the purposes of posterity. The entirety of the sea wall was to be measured from Shirehampton to Longney and the results set down in two books, for the upper and lower levels, ‘made and kept for that purpose that the same may remaine a perpetuall record to future ages... preventinge controversy and avoidinge frequent sittings of the Court’.\textsuperscript{194}

The archival culture developed by Samuel Neale and subsequent clerks was pressed into service by the Lords Stafford when they disputed their obligations at Oldbury. When preparing for the case, the Stafford’s lawyer was able to cite archival references for each folio of each volume of minutes.\textsuperscript{195} The use of such scholarly apparatus enabled them to systematically address and refute tenants’ claims, claims that were themselves being made on the basis of recorded custom. Such cataloguing enabled the wisdom of previous juries and elder community figures to become part of a scholarly, textual dispute that followed logic and legal precedent in a system of textual, bounded and relatively static knowledge.

Most problematically for jurors and their world of oral custom, the texts produced by the clerks of the courts, records of their own speech, came to be used by absentee landlords in

\textsuperscript{190} i.e. GA D272/1/7, ‘Gloucestershires Court of Sewers, General Minutes, 1653–1653/4’, fol. 1v, fol. 24v.
\textsuperscript{191} GA D272/1/10, ‘Gloucestershires Court of Sewers, General Minutes, 1661–1663’, fol. 16; GA D272/2/2, ‘Gloucestershire Court of Sewers: Upper part minutes, 1699–1714’, unpaginated, session 21 February 1704.
\textsuperscript{192} GA D272/1/3, ‘General Minutes, 1615–31, 1635’, fol. 101r.
\textsuperscript{193} D272/1/8, ‘Gloucestershire Court of Sewers, General Minutes, 1653/4–1656’, pp. 7–8.
\textsuperscript{194} D272/1/13, ‘General Minutes, 1671–1684’, fol. 125v.
\textsuperscript{195} SRO D641/2/C/4/1/v/I, ‘Cases concerning property in Gloucesthire’; The original volumes have subsequently been rebound and rearchived in Gloucester under the classmark GA D272/1 making the Staffords’ references obselete.
attempts to relieve themselves of flood defence obligations. The Staffords’ legal counsel seemingly placed great emphasis on copious and rigorous collation and citation. In a motion regarding liability for floodgates and sea defences at a mill bordering Oldbury and Kington tythnings that was presented to the commission of sewers, the Staffords detailed thirty-eight separate precedents for liability. These were abstracted and their source noted from eleven separate volumes of sewers minutes labelled A to K. At the end of the list, to leave the court in no doubt that liability lay with the mill owners, and not the lord of the manor, there is an index of precedents showing nineteen ‘proofes for the Lady Stafford’, and only eighteen for the mill owners. Elsewhere when tenants brought textual proof to bear it was undermined by a lack of legal devices used to persuasively present it. The Staffords complained that the tenants brought several ‘vast presentments’ that ‘extended beyond all reason’ and ‘which without a good construccon will crosse many others before, of the same tyme & after’.

In this, and other cases, what began as the oral evidence of experience, given to address a specific environmental problem was subsequently transmuted, first by transcription, then by citation, into another kind of ‘usable past’, one that bestowed agency no longer on the articulator, but the rearticulator, to ends potentially quite contrary to those that motivated its initial utterance.

Codification made previously malleable, relatively accessible oral customs and practices ‘subject to diachronically ordering influences from without’. As Adam Fox notes, ‘a consequence ... of the arbitration of local custom by central equity courts was the invention [of] a documentary basis for it.’ Outside the Courts of Sewers, in higher courts such as Exchequer and Chancery, jurors’ reliance on custom would come to limit their effectiveness as representatives of local interest. Over the course of the early modern period, ‘courts came increasingly to give priority to written evidence over verbal witness wherever it was available’. In 1581, William Lambarde advised Justices of the Peace that ‘One may affirm a thing, and another may deny it, but if a Record once saye the word, no man shall be received

198 Sandall, ‘Custom, Memory and the Operations of Power’, p. 149.
199 Fox, Oran and Literate, p. 281.
to Averre (or speake) against it’. Texts were preferred to oral evidence in central courts because of their apparent fixity, transparency and fidelity. John Evelyn summed up this view in his 1650 *History of Religion*:

> If the Scriptures deceive us, which are written Records, how much more obnoxious are we to oral tradition! If there be such difficulties in expression of our minds, when we deliberate about what we write, how much more subject are we to mistake in speaking! Verbal reports we experimentally find so very inconstant and apt to err, and misrepresent things, done even in our own time and very neighbourhood, either by concealing the truth of narrations, or adding to them.

The implications of these changes would hasten the marginalisation of custom. As James Scott notes, custom is a ‘living, negotiated tissue of practices’ which communities shape to react to current environmental stimuli, and is ‘continually being adapted to new ecological and social circumstances’. Focussing water governance on texts employed historicizing principles that removed a degree of agency from local people, as well as an element of the live ecological responsiveness that communities could insert in their ‘negotiating’ of customary knowledge.

### The limits of Commissions’ powers

The erosion of popular control over customary knowledge and the concomitant impact on the control of water government took place over the long term, incrementally and as part of wider changes in political and legal culture. These changes remind us that the type of state formation precipitated by Commissions of Sewers was similar in kind but more significant in degree than in other areas of early modern government. Commissions of Sewers thus also faced and were part of the same problems as those affecting wider political culture.

In December 1641, Parliament presented Charles I with the Grand Remonstrance,
detailing over two hundred of their grievances stretching across his reign. This daring ‘prolix, pedantic, and almost obsessively detailed’ laundry list of complaints was devised by a Puritan parliamentary bloc and formally addressed to the king.204 However, as a ‘calculated appeal to the populace’ it spoke most meaningfully to provincial political power-brokers.205 This ‘remarkably provocative document’ was an important pre-cursor to civil war, as Parliament spoke not only directly to the king, but also ‘remonstrate[d] downwards, [and told] tales to the people.’206 Its main contentions were with the ‘popery’ of Charles’ court, the denigration of parliament, and the infringement of property rights.207 Remonstrance thirty-two took aim at local bodies charged with maintaining drains and embankments, complaining that ‘Large quantities of common, and several grounds, hath been taken from the subject by colour of the Statute of Improvement, and by abuse of the Commission of sewers, without their consent, and against it.’208 Amidst a growing political crisis, Parliament brought the work of provincial flood defence agencies, the Commissions of Sewers, to the king’s attention as a great matter of state on par with Popery, continental warfare and general taxation. The inclusion of this secular, populist grievance alerts us to the contemporary political significance of flood defence management and landscape improvement, and the deep unease they were viewed with in the provinces.

There was a great deal of contemporary anxiety over the limits of the powers of commissions of sewers. The main cause of this uncertainty was the degree of novelty the commissions were allowed to introduce: whether commissions were allowed to construct ‘new works’, or solely maintain old ones (chapter four). There was also some uncertainty over the types of work commissions could carry out, particularly where water resources and other

modes of transport met, at bridges, dikes and footpaths. These rarefied legal debates related to very real problems on the ground. In Gloucestershire in 1622 jurors identified ‘the wayne bridge at Oldburyes mill’ as ‘in decaye & hath neede to be repayred’ at a cost of five pounds. Seeing the commission’s role as a general waterscape regulator, the jurors of the lower level presented the bridge as a common resource that should be repaired by its owners. However, the commission’s response was that the bridge was not under their jurisdiction, presumably as it did not relate to a natural watercourse, flood defence or drainage, and thus they did ‘not finde that this concerns their Comission. Soe nothing therein ordered.’ The commission had no trouble however introducing a newly improved quay at Berkeley ‘for ye more convenient bringing of boates therevnto’. The new quay was ordered to be dug twenty feet broad and twelve feet high in October 1631, with significant alterations to neighbouring mill streams carrying water from floodgates. All of this was to be undertaken ‘for tryall and experience’ as the commission sought to improve conditions for short-range shipping to Berkeley. As a regulatory body, the commission’s role was at times unclear, allowing the ‘powerful discretionary impulse’ of early modern government to guide decisions. Discretion could also be manifested in more obviously self-interested decisions. Lincolnshire Commissioner Robert Callis wished that all Commissioners would be ‘well stored’ with that ‘herb of grace’, discretion. The court’s power to levy fines made it successful in securing compliance from the financially vulnerable. Fines proved less of an incentive for wealthier landowners, like the Stafford family of Oldbury and Thornbury. The Staffords were able to avoid fines and instrumentalise the court’s power for their own ends. Sir John Stafford avoided redress for flooding drainage ditches with his watermill at Oldbury as he sat on the commission, and would not consent to fining his miller. This involved the

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211 Ibid., fol. 99v-100.
213 Callis, Reading, p. 85.
same mill that the commission also elected not to regulate in 1622 when its wain bridge was broken.\textsuperscript{215} Despite widespread participation in commissions, environmental justice and resource management remained a function of wealth and power in local society. Mirroring what Mark Kennedy found in Lincolnshire in the 1630s, Gloucestershire Commissioners used their position in both the ‘government and misgovernment’ of the county.\textsuperscript{216}

Commissioners were of course limited by higher courts, yet some operated as if they were not. Across the seventeenth century, individual Commissions of Sewers exceeded their authority, and sought to exercise almost unlimited power over the areas they governed. Sixteenth- and seventeenth-century legal writers argued that Commissioners of Sewers often exceeded the bounds of their powers. Nicholas Fuller argued that it was common for Commissions of Sewers, to ‘exceed their authority’ when they granted writs to imprison subjects that strictly fell outside of their jurisdiction. This was a problem, as local officeholders such as Sheriffs were obliged to carry out writs made by commissions (and thus made in the King’s name), and were only able to be judged legal or not by crown Judges. Thus people were being imprisoned illegally until writs of \textit{Habeas Corpus} could be obtained from the courts of Common Pleas or King’s Bench.\textsuperscript{217} In the Surrey and Kent court of Sewers in 1572 William Legarde came before the court accusing the Commissioners of failing to properly enrol a fine levied upon him. When the fine was taken from him by distress in the form of a stack of hay, he stole it back, came into the court and ‘arrogantly toke upon him to correct & allso to teache the commissioners ther duties’ before making ‘arrogate tauntes in ye face of the courte & in contempt of the quenes Majesties comission’.\textsuperscript{218} Several of the kinds of failures

\textsuperscript{215} GA D272/1/3, ‘General Minutes, 1615–1631, 1635’, fol. 45
\textsuperscript{217} Nicholas Fuller, \textit{The argument of Master Nicholas Fuller, in the case of Thomas Lad, and Richard Maunsell, his clients} Wherein it is plainly proved, that the Ecclesiastical Commissioners have no power, by vertue of their commission, to imprison, to put to the Oath ex officio, or to fine any of his Majesties subjects. (London, 1607), pp. 16–17; Similar arguments are also made in Sir John Eliot, \textit{The arguments upon the writ of habeas corpus, in the Court of Kings Bench. Wherein, are learnedly discussed, not onely the severall branches of the said writ, but also many authorities as well of the common as statute law: and divers ancient and obscure records most amply and elaborately debated and cleared. Together, with the opinion of the court thereupon. Whereunto is annexed, the petition of Sir Iohn Elliot Knight, in behalf of the liberty of the subject.} (London, 1649), p. 38.
and abuses of office protested by Legarde are recorded in the law reports of King’s Bench, to which commissioners were summoned on complaint of their constituents. In 1613, Sir Edward Coke noted of Commissioners of Sewers that it was ‘the common opinion, that they may do what they will’, after Northamptonshire Commissioners had illegally imprisoned William Hetly in Peterborough gaol for attempting to take them to court. These incidences of procedural laxity and mission-creep filtered down into local understandings of the law of Sewers. Some commissioners exploited the lack of a systematic appeals process that would allow the comprehensive review of their decisions by other courts. In 1669 and 1670 several Commissions were fined multiple times for ignoring writs of certiorari, and claiming their jurisdiction was not subject to the authority of King’s Bench. In abusing their discretionary powers and attracting the ire of the King’s Bench, Commissioners continued to test the limits of local-central relations that had characterised the relationship between Commissioners and local state agents, and central Government in Charles I’s reign.

Jurors too were capable of using their privileged position as arbiters of local knowledge to halt unwanted improvement works in the seventeenth century, so long as those conflicts remained within the Courts of Sewers. In 1619–20, Sir Anthony Thomas and his father-in-law Sir William Ayloffe, attempted to drain the Cambridgeshire Fens. Ultimately, they were thwarted by a reluctant and truculent Commission of Sewers and its political manipulation of local expertise. James I supported their scheme and repeatedly commanded the Cambridgeshire Commissioners to assist Thomas and Ayloffe. Without the Commission no drainage could take place. Both Thomas and Ayloffe and the Commissioners were ordered by James to cooperate and by May 1620 a deal for the drainage of the Cambridgeshire fens under the adventurers, rather than the Commission was struck. In a concession to the local interest, the deal ensured that lands yielding more than 8s per annum were exempted, as it was

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219 English Reports, lxxx, pp. 1064–66.
221 English Reports, lxxxiii, p. 411; English Reports, lxxxiv, p. 400; English Reports, lxxxvi, p. 46, pp. 719–20.
doubted that drainage would provide any profitable improvement. Crucially, the jury of the Commission of Sewers was to be the arbiter of this value as they, rather than Thomas and Ayloffe (despite their protestations), had the means and local knowledge available to adequately survey the land. Perhaps predictably, the Commission returned a majority of the acreage in question as worth more than 8s a year. Ayloffe and Thomas complained that the land was ‘greatly over estimated’, and that local jurors were ‘averse to their undertaking, and plotting to compel them to desist’.223 Subsequently the drainage scheme collapsed.224 By 1630 Charles I had grown increasingly frustrated with the Lincolnshire Commission of Sewers, finding ‘from them no respect nor conformity to his pleasure’. They obstructed drainage enterprises and ‘induce[d] distraction and the overthrow of the business’, with their juries and their ‘partial and unsafe verdicts’. Charles threatened to ‘interpose his regal power’, should they continue ‘to give ear to forward men’ and create ‘unnecessary difficulties’.225 Other schemes sought assurances that they ‘receive no impediment from the Commissioners, nor the Country’.226 Here empowered and popular Commissions of Sewers utilised the local knowledge of jurors to defend against the schemes of external investors.

**Conclusion**

We should take seriously the impact of environmental change on the history of the state. Such a line of argument has been recently pursued by Geoffrey Parker in his wide-ranging *Global Crisis*. In his world history of the interactions between climates and states in the mid-seventeenth century, Parker argues that nearly all states underwent significant upheaval in the period as a result of an inability to cope with short-term climatic variability.227 Parker’s

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223 CSPD, cxvii, p. 193.
225 CSPD, clxi, , p. 30. See also Summers, *The Great Level*, p. 63.
argument is not strictly environmentally determinist, as the effects of variability are mediated through, but not mitigated by political institutions, which nearly universally strain under the pressure. The examples in these chapters shed some light on the specific operation of some of these interactions.\textsuperscript{228} They show the direct relationship between environmental stimuli and political institutions, and reveal that multiple outcomes were possible within the same polity, largely determined by local conditions. Thus, in Lincolnshire, Commissions of Sewers fared significantly worse than in Gloucestershire, where they strengthened over the century. They show that, with regards to flooding at least, the early modern English state was well adapted to absorb the political shocks caused by short term variability and climatic ‘crises’, and that often these were no shocks at all – rather moments of incorporation. This is in contrast to Parker’s arguments regarding the impacts of harvest failures on the Civil Wars. In his recent environmental history of medieval Europe, Richard Hoffmann called for more research into ‘positive cultural adaptations to the experience of climatic catastrophes and of subtler climate changes’.\textsuperscript{229} Whilst making no attempt to link the flood events studied here to longer term climatic trends, this chapter has indeed shown ‘positive cultural adaptations’ to challenging environmental circumstances.

Environmental factors can add a different temporal dimension to state formation narratives. Flooding impacted on state formation, yet not in a manner different to other, extraneous developments, and it did not change the course of the history of the state. Flooding did however change the rate of state formation and through the institutions set up to deal with it, created opportunities for friction between central and local government. Flooding precipitated more intensive periods of state formation, and more points of tension. This is important, as historians have written about the growth of the state as a long-term, incremental process that ‘quickened’ in significant decades. In these examples we can see the pace picking up dramatically after significant flood events.

\textsuperscript{228} Jan de Vries has criticised Parker for being unspecific as to these interactions. Jan de Vries, ‘The Crisis of the Seventeenth Century: The Little Ice Age and the Mystery of the “Great Divergence”’, \textit{Journal of Interdisciplinary History} 44, 3 (Winter 2014), pp. 369–377, pp. 376–77.
Furthermore, these examples blur the boundaries between the much-mooted coercive and integrative processes of state formation.230 Primarily, this chapter has shown how central initiative was less successful and more fractious than local initiative. Arguing that states can form collaboratively with subjects in response to an environmental stimulus, and with regards to water control and government, goes against Wittfogel’s contention that states grow through ‘despotic’ water control. In the examples of Commissions of Sewers, we see local people seeking to coerce one another, and Commissions integrating (sometimes unwittingly) popular legal practice within the state.

Conclusions

Structured thematically, this thesis has analysed five inter-related themes in the history of flooding in early modern England. As such, it has not offered an over-arching narrative of change over time, neither has it attempted to show whether the incidence or intensity of flooding changed over the period. Instead, the focus has been on the relationship between flooding and its concomitant social and political contexts. Several piecemeal diachronic narratives have been proposed that both reinforce and add nuance to pre-existing narratives in social, cultural and political history.

Chapters one and two outlined two opposite, but necessarily interlinked kinds of flood experience: the exploitation of floods as persistent productive forces, and their unmanaged realisation as damaging, or ‘disastrous’ events. These analyses of the materially profitable and perilous aspects of flooding linked floods to the social contexts in which they occurred. In both cases, how an individual or community experienced a flood was determined to a great extent by their position within an affected community or society. Thus, productive uses of floodplains were open to those with resources, or who met the threshold requirements of the communities that managed them. This meant that communities that lived with floods often strove to significantly regulate productive activity within them, or restrict it entirely to outsiders. Where floods exceeded what prevention measures could handle, how individuals were affected depended on their structural vulnerability, conditioned by socio-economic status. In the wake of these negative flood events, these determinant factors were further emphasised, as flood defence maintenance was popularly administered, but individually paid for. These chapters were linked by a focus on the ‘socio-natural’ aspects of flooding, which, chapter two argued, necessitated paying greater attention to smaller failures of water management alongside large scale flood events, to fully understand the everyday experience of flooding.

Taking up this focus on local conditions and the impact rather than the intensity of
flooding, chapter three argued that flooding has a more complex cultural history than current historiography accounts for. Current understandings of the cultural history of flooding that explain popular perceptions of floods with reference to providence only are limiting. Focussing on narratives of floods produced by those who were flooded, rather than on the printed literature used in accounts of early modern providentialism, this chapter argued that floods were understood in a number of different, sometimes conflicting ways. Rather than drawing primarily on overarching cosmological and soteriological concepts, those who were flooded understood flooding through highly localised cultures of place, kinship and custom often before they reflected providentially on their experiences. Floods instead had a multitude of meanings, which were invoked at different times as communities came to cope with significant material disruption. However the local specificity found in parish registers and sewers court minutes was not static. Cultural historians have identified a tendency for local customs and histories to be subsumed within wider national narratives that tend to erode local specificity.¹ The spread of printed news created a feedback loop in which styles of reporting and ways of understanding floods became reflected in the narratives found in local sources. The ways in which early modern people understood, interpreted, and related their experience of flooding was then conditioned as much by social and cultural contexts as it was religious cosmologies.

Such narrative framing was then addressed with regards to political struggles over flooding in chapter four. Surveying disputes over what should be done about flooding, rather than retrospective accounts of what floods had done, this chapter argued that over the course of the sixteenth century, and in the early years of the seventeenth century in particular, flooding came to be viewed through the lens of improvement. As in chapter three, here a national cultural phenomenon impacted on local interactions with flooding, yet here a self-conscious response, frequently a resistance, met this broader cultural change. Changing economic circumstances and new agricultural and economic ideas caused flood liable land to

be seen as a missed opportunity for development. Floodplain communities often attempted to oppose these representations, and descriptions of flooding became highly politicised in fora as diverse as the high-profile legal disputes of James I’s court and the local interrogations of elderly marshland farmers.

The final chapter traced the impact of a revamped statutory instrument for flood management, the commissions of sewers, on early modern state formation. Linking the use of discretionary local government to broader changes in the English state in this period, this chapter argued that commissions of sewers provide an illustrative case study for the idea of the ‘quickening pace’ of local government. Furthermore, this increase in the involvement of the state in local society gathered even more momentum after large floods, as local people participated in statutory flood management in unprecedented numbers. This chapter then showed how environmental stimuli could impact on historical narratives from which environmental issues have hitherto been largely absent. These political developments had consequences for the management of flooding, as bureaucratic and administrative practices codified oral customs and shifted the ability to manage local hydrological conditions from inhabitants who dwelt with water to those who were literate and able to adequately marshal the textual record.

Few of these diachronic arguments rely on precise narrative-shifting moments. Even where they do, where it is argued that large floods accelerated processes of state formation at a local scale, events are shown to have catalysed pre-existing processes of change, rather than generating any of their own. Together what these chapters show is that the experience of environmental phenomena in early modern England was inseparable from the experience of social, cultural and political processes. Wealth and social status structured how and by whom floods were utilised and their disastrous impacts felt. Changing cultural horizons altered the ways in which floods were conceptualised. From the sixteenth century onwards, improvement provided a paradigm through which floods were viewed, with which flood prone landscapes came to be governed and against which local interest groups frequently clashed. Large floods increased the involvement of the state in affected localities, and this involvement in turn
shifted practices of water management into more formal, bureaucratic modes which then weakened the link between local opinion and water management. In each case, interactions with flooding are mediated.

The omnipresence of water in human societies can invite platitudes and sweeping, transhistorical statements about its supposed inherent qualities and relationship to humanity. This thesis has showed that in the context of flooding such statements are untenable. Every flood was woven into the fabric of the social, cultural and political lives of those it affected, and therefore inextricably tied to its chronological and geographical contexts. Floods thus emerge as co-actants in the social, cultural and political developments of early modern England.

The socio-environmental complex has provided a key analytical focus in this thesis. It has shown that communities that routinely dealt with flooding were engaged in different practices of ‘environing’ – demarcating their particular sphere of action (their ‘environs’), outside of which are forces they choose not to think or act with. Practices of ‘environing’ have been illustrated across chapters three, four and five of this thesis. Providential authors, local parish chroniclers and sewers jurors offered differing ‘environed’ understandings of flooding that placed certain floods within collectively understood controllable limits, and others outside of them as acts of providence. Agricultural improvers envisioned landscapes without floods, removing hydraulic processes that had historically been central to local agriculture. The bureaucratisation of commissions of sewers increasingly saw drainage issues as legal problems for which there were legal solutions, framing their environs in terms of historical administrative precedent. The concept of a socio-environmental complex also helps us see how processes of ‘environing’, particularly communal ones, are also processes of community definition, of ‘communing’. As communities at a variety of scales understood their capacity to shape their interactions with water and define their environments, they also defined themselves. Flood-prone communities exhibit an increased propensity to define not just what

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they are, and what they are capable of, but who they comprise.

In drawing these conclusions, we can then support the current trend in disaster studies to consider flooding, and other ‘natural disasters’ as creations of culture as well as ‘nature’. If the various communities studied here exhibited, in Christian Rohr’s phrase, ‘cultures of flood management’, their mediation, understanding and response to unmanaged flooding was also highly culturally conditioned.³

The conclusions of this thesis also support several points of archaeologist Matt Edgeworth’s recent ‘manifesto for an archaeology of flow’. Edgeworth has proposed that rivers are ‘partially wild’, ‘cultural artefacts’. To understand them we need to accept that ‘human activity and river activity are intertwined’, and that to understand rivers we must understand ‘past human activities (and vice versa).’⁴ Where Edgeworth writes about rivers, this thesis has written about flooding. In approaching the movement of water through human society from the perspective of archaeology, Edgeworth has sought to illustrate the cultural dimensions of water- and landforms that are accessed through physical remains and technical documentation. As historians, the cultural dimensions of rivers and floods are more immediately obvious, given the nature of the records we use. Yet the cultural aspects of past environments still require emphasising, because, as Ellen Arnold has argued, premodern environmental history has tended to focus on ‘the tangible changes that nature and humans wrought on one another’ rather than on intangible cultural changes.⁵

**History and contemporary flooding**

This deep-embeddedness of the experience of flooding in early modern rural life provides an interesting perspective from which to reflect on present flood-related issues. Research into communities’ experiences of recent floods has concluded that communities should be

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encouraged to consider themselves ‘in ways which recognise their embeddedness in landscapes/places which are formed of ecological communities, material actors, processes and agencies.’ The embeddedness of communities in the early modern period is made particularly clear when considering flood regimes, and adaptations to wet environments. Attempts to engender such environmental reflexivity in current floodplain management practices emphasise ‘integrated decision making between planning professionals and other agencies with a stake in flood risk.’ In modern Scotland, for example, ‘Flood Liaison Action Groups’ are required by law. These bring together local interested parties, including businesses and residents, and provide biennial reports of flood events in the local area to raise awareness of flood risks. The Pitt report into the experience of the 2007 floods emphasised the need to strengthen ‘local leadership’, increase community knowledge of flood risk, and to communicate information using locally relevant, non-technical language. Such local endeavours seem in some senses like a return to some of the much older, participatory forms of water management explored in this thesis. Yet these schemes do not function everywhere. Commissions of Sewers have been replaced with elected Internal Drainage Boards (IDB), and the enthusiasm for these local bodies found in the seventeenth century is not replicated today. In both the study areas recent IDB elections in 2012 returned ‘no poll’ notices, as none of the positions were contested at the ballot box. As recent research into the Somerset Levels has shown, communities in flood-prone areas tend not to consider flooding as part of their

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6 Owain Jones, *Connected Communities: Re-thinking and re-connecting communities with and through water issues: situated (place-time) and therapeutic narratives* (Arts and Humanities Research Council Report, 2013), p. 2.


history. Researchers have urged arts and humanities scholars to connect flood liable communities to this history of flooding, to help them ‘think with a watery sense of place, and through and with a wateryscape’ in order to promote resilience. Encouraging greater public engagement with local histories of flooding could provide avenues for the contemporary application of environmental historical research. Understanding the positive and negative aspects of communal participation in the past can also inform how these flood histories are applied.

**Future directions**

The story of early modern flooding told here is by no means complete. It is a small section of a broader European history of water management. Whilst the analytical perspective has been influenced by continental historiography, this thesis has been confined to England, with a few brief excursions into Wales. Much of what has been analysed, and much of the argument, has been local in scale. Floods have emerged from the analysis as local events with local impacts, despite their narrativisation and political exploitation on a national scale. However, with a broader focus, we can identify significant international perspectives on the history of flooding and drainage that remain unexplored.

There are fundamental physical links between northern European countries that justify studying them together. Greg Bankoff has recently characterised the North Sea Basin as a region of shared risk, and Ian Simmons has called for a post-Roman water history of the North Sea area. There is also a European history of drainage and flooding that exists at the scale of national governments. Both the Counts of Holland and the English crown began to formally and legally integrate previous local and customary water management structures within central polities in the 1250s. Count William II of Holland issued the first recognised privileges over water control to the *dijkgraaf* of Spaarndam in 1255, whilst Henry III of England granted the

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12 Ibid., p. 334.

first recognisable Commission of Sewers to Henry de Bathe in 1258. There are similarities between the methods used by sewers juries and sixteenth-century Habsburg enquestes, particularly in their use of oral and customary evidence. The French and English governments pursued similar and coincident drainage policies in the seventeenth century, as both and governments passed general drainage acts in 1599 and 1600 respectively, and both Louis XIII and Charles I took charge of large drainage projects in the 1630s. There are even similar issues with the loss of local control over property and water management customs accompanying the increasingly textual legal disputes over flooded land in the Netherlands in this period.

As research into some of the transnational protagonists of drainage schemes has shown, these are more than just chronological coincidences. Men like the Anglo-Flemish engineer Humphrey Bradley attempted to win support for large scale, state-sponsored drainage projects in both England and France in the later-sixteenth century. Research has focussed on the activities of Dutch hydraulic engineers, such as Cornelius Vermuyden, and their activities across Europe in the seventeenth century and beyond. Historians have shown how international ‘expertise’ and finance played a crucial, but not always successful or welcome

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15 I am grateful to Milja van Tielhof for discussing this connection.
role in flood control schemes in Venice and France. Yet there is no synthetic study of the circulation of ideas about water in Europe in the early modern period, a time at which governments pursued remarkably similar policies despite the outward mistrust and lack of cooperation between them. A very recent study has argued that similar drainage schemes had divergent outcomes in the Netherlands, France and England because of differing institutional arrangements, yet we still lack a coherent understanding of why such similar policies were pursued across Europe simultaneously.

Cultural links extend beyond the movements of hydraulic engineers. English agriculturalists boasted of their travels in the Low Countries and the expertise they had learned there in relation to floodplain agriculture. Dutch (and Scottish) prisoners of war were used as forced labour on drainage projects in the Bedford Level in the 1650s, and lively Dutch settlements were established by more willingly impressed workers on the newly drained land at Axholme and Canvey. This internationalism in water management was not always

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22 Richard Weston, A discours of husbandrie used in Brabant and Flanders shewing the wonderfull improvement of land there; and serving as a pattern for our practice in this Common-wealth. (London, 1650); Samuel Hartlib, Samuel Hartlib his legacie: or An enlargement of the Discourse of husbandry used in Brabant and Flanders; wherein are bequeathed to the Common-wealth of England more outlandish and domestick experiments and secrets in reference to universall husbandry. Entered according to the late Act concerning printing, Discours of husbandrie used in Brabant and Flanders. Discours of husbandrie used in Brabant and Flanders (London, 1651); John Worlidge, Systema agriculturae the mystery of husbandry discovered : wherein is treated of the several new and most advantagious ways of tilling, planting, sowing, manuring, ordering, improving all sorts of gardens, orchards, meadows, pastures, corn-lands, woods & coppices and of all sorts of fruits, corn, grain, pulse, new hays, cattel, fowl, beasts, bees, silk-worms, &c. : with an account of the several instruments and engines useful in this profession : to which is added, Kalendarium rusticum, or, The husbandmans monethly directions : also the prognosticks of dearth, scarcity, plenty, sickness, heat, cold, frost, snow, windes, rain, hail, thunder, &c., and Dictionarium rusticum, or, The interpretation of rustick terms / published for the common good, by J. W (London, 1669), p. 24. The Privy Council even sent English ‘stiltmen’ to the Low Countries to learn about Dutch agriculture. Richard L. Hills, Machines, Mills and Uncountable Costly Necessities: A Short History of the Drainage of the Fens (Norwich: Goose and Son, 1967), p. 9

welcomed by the locals, as resentment, rioting and unrest dogged Dutch settlements, and was manifested in popular culture. In south Gloucestershire, Dutch influence along the banks of the lower Severn grew in the later-seventeenth century. John Smyth the younger sought out ‘a dutchman for... Slimbridge Grounds’ in 1674, and the area can claim the first English example of a Dutch water garden (featuring highly ordered ornamental canals) at Westbury-on-Severn, a few hundred metres from the notoriously unruly river. Narratives of great floods also circulated. Chapter three showed how stories English and continental floods circulated between England, France, Ireland, Italy, Netherlands, and Spain in a trans-European market for strange-news and disaster literature.

If we are to take seriously the assertion that ideas are ‘ecological agents’, we must address them in their fullest cultural and intellectual contexts. Some notable studies have focused on ideas of nature across Europe in the early modern period, but none as yet has addressed attitudes towards water specifically, and how those attitudes fed into the many remarkably similar flood defence, drainage and reclamation policies pursued by central governments. Such a history has the potential to reach out across both national historiographical and disciplinary boundaries. Amidst recent calls from historical hydrologists for a ‘European flood change research network’ to explore ‘large-scale patterns of flood regime changes and to learn from the similarities and differences of flood processes within Europe’, it is crucial that we do not lose sight of the cultural, social and political aspects of water management in this European context.

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The micro- and national political struggles over flooding and drainage examined in this thesis should then also be considered in a transnational and specifically a European context. There has not been space to do this here to any great degree, however it suffices to say that the story of local flooding has dimensions that both transcend parish politics and implicate them in international histories.
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others: together with the losse of many men, women and children, and the subversion of xxvi parishes in January last 1607. (London, 1607)

Anon., 1607. A true report of certaine wonderfull overflowings of waters, now lately in Summerset-shire, Norfolke, and other places of England destroying many thousands of men, women, and children, ouerthrowing and bearing downe whole townes and villages, and drowning infinite numbers of sheepe and other cattle. (London, 1607)

Anon., A brieve relation by the commoners in Lincolnshire of their legall interest, and that nothing of interest the vndertakers have in law. (London, 1651)

Anon., A breviate of the cause depending, and prooves made before the committee of the late Parliament for the Fens by the inhabitants between Borne and Kime Eae, in the county of Lincolne, being lords, owners and commoners of, and in the several Fens, where in Sir William Killigrew, &c. pretends a title as sharers with the late Earle of Lindsey. (London, 1655)

Anon., A Full and true account of the vvonderful eruptions of a prodigious burning mountain, vvhich cast out vast quantities of fire to the destruction of several whole towvn. Together with a relation of a vvonderful earth-quake. Likewise strange and vvonderful news from Ireland; giving a relation of a great flood that hapened there by rain. (London, 1687)

Anon., A Narrative of the dreyning of the Great Level of the fenns, extending into the counties of Northampton, Norfolke, Suffolke, Lincolne, Cambridge and Huntington, and the Isle of Ely, containing about three hundred thousand acres (London, 1660)

Anon., A relation of the proceedings & causes of complaint, between the undertakers with the Earle of Lindsey, in the levell of Fenns in Lincolnshire betwixt Bourne and Kine Eae, and the owners and commoners there (London, 1650)

Anon., A reply to a printed paper intituled The state of the adventurers case, in answer to a petition exhibited against them by the inhabitants of the Soake of Peterborow, which clearly demonstrates the said answer to consist of nothing but falsities and untruths, fallacies and equivocations, calumniations and detractions. : And for the better satisfaction of the reader, there is herewithall printed the petition itself, and the exceptions to the Act for drayning: together with a paper which the undertakers (though falsly) stile a warrant for a taxe. (London, 1650)

Anon., A Terrible Deluge or overflowing in Roome, at their Christmasse last: Whereby a great number of houses were overthrowne, to the value of sixe Millions of Duckets lost, and a thousand foure hundred persons drowned (London, 1599)

Anon., A True and Perfect Relation of The great Damages done by the late Great Tempest, and overflowing of the TYDE Upon the Coasts of Lincolnshire and County of Norfolk (London, 1671)

Anon., A True and perfect relation of the late and dreadful inundation which happened in Holland on Sunday Novemb. 3, 1675 at 4 of the clock afternoon, Saturn being then in opposition to Mars by which lamentable accident all the land is set under water from Amsterdam to Leyden, Utrecht, Woorden, Tergow, all South-Holland, and a great part of North-Holland, about Hoorn, &c. : together with an account of those further miseries and calamities that followed thereupon, as the drowning of men, women and children, and multitudes of cattel : as also a brief account of a dreaful storm with thunder and lightning on the same day at Antwerp and Gent, to the loss of the lives of divers personas [sic] (London, 1675)

Anon., A true relation of the great and terrible inundation of waters, and over-flowing of the lower-town of Deptford, on Thursday last, about two of the clock in the afternoon: With the manner how the river of Thames brake into the merchants yard, Greenwich Meadows, and several other places; removed great trees, level’d strong foundations, drowned may hundreds of cattel, and flowing up to the second story of the Chambers, insomuch, that the water-men were forced to row up and down the streets with their
boats, to take men, women, and children, out of their windows, and to save little children that swum in their cradles: With the appearing of three black clouds immediately before the flood, foreshewing the strange things that will happen, a sudden change, and each man to enjoy his own again. (London, 1651)

Anon., A true relation of the many sad and lamentable accidents that have happened by the fearfull floods occasioned by the late unusual rains in several counties of England, for several days past by which many people, cattle, houses, barnes, much corn and the like have been destroyed, together with the dismal effects of the prodigious thunder and lightening very amazing and dreadfully attended with many fearful circumstances well worthy the perusal of all Christians. (London, 1683)

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Anon., Case of the town and port of King 's-Lynn in Norfolk, as to their navigation. (London, 1696)

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Anon., More strange nevves: of wonderfull accidents hapning by the late overflowings of waters, in Summerset-shire, Gloucestershire, Norfolke, and other places of England with a true relation of the townes names that are lost, and the number of persons drowned, with other reports of accidents that were not before discouered: happening about Bristow and Barstable. (London, 1607)

Anon., News from the fens, or, An Answer to a pamphlet entituled, Navigation prejudiced by the fen-drainers (published lately in defense of the petition of Lin, delivered to the Committee for petitions) (London, 1654)
Anon., Sad and lamentable newes from Holland Being a true relation of the great and wonderful inundation of waters, that brake in at the town of Gorkham, in the night-time, near the city of Amsterdam, where many stately houses became buried [sic] in the violent waves; both men, women and children perishing in the raging billows. Also, the manner how the waters brake in again with great violence, on Monday last about noon, at the two strong sluices of Bonnel and Thieler, where about thirty villages were drowned and not any thing to be seen, but the tops of some few steeples and chimneys, many perishing in the waters; some escaping in boats, and the poor infants floating upon the raging vaves in their swaddling-bands and cradles together with the sad and wofull cries and groans of the poor distressed inhabitants; and the ringing of the bells backward, to prevent the perishing of others. (London, 1663)

Anon., Sad news from the countrey, or, A true and full relation of the late wonderful floods in divers parts of England (London, 1674)

Anon., Strange and terrible news, from Holland, and Yarmouth. Being, a perfect relation, concerning the inundation of the south sea; and of its drowning the rich and populous city of Amsterdam; with divers other places in Friesland, Holland, Brabant, and Flanders, and the names of them. Also, the over-flowing of the river of Rhine, and sinking 60 parish churches, and drowning 100000 men, women and children; and how they row in boats near Amsterdam, over the tops of houses. Togethek, [sic] with the breaking in of the sea at Soal (near Yarmouth) drowning a great part of the country and many cattle; also casting many ships upon the land, and forcing others to sea in that storm (London, 1651)

Anon., The Anti-projector, or, The history of the Fen project (London, 1646)

Anon., The Arząnement of Iohn Flodder and his wife (London, 1615)

Anon., The Case and proceedings of at least sixty gentlemen participants and purchasers for valuable consideration, of lands in the levell of Hatfield Chace, the counties of York, Lincolne and Nottingham and more then two hundred of their tenants who have been dispoiled of their estates by the inhumane and barbarous ryots of the inhabitants of the mannor of Epworth (London, 1656)

Anon., The case of the owners of more than sixty thousand acres of rich and valuable lands, bordering upon the fens, called, Bedford-Level (London, 1697)

Anon., The grieved Country-mans complaint. Heare o ye heavens and hearken ye inhabitants of the Earth, you will stand astonished and amazed to hearre the wonders and miracles I shall declare unto you! Yet they are not so strange as true. (London, 1652)

Anon., The humble petition of the inhabitants of the soake of Peterborow, within the county of Northampton, containing about forty towne and villages, against the undertakers there: with exceptions to their act: setting forth how and wherein they abused the Parliament by their false suggestions; and a relation of a new reviving of an old court project terribly to threaten those who oppose selfe-ended designes (London, 1650)

Anon., The Sad and dismal year. Or, England’s great and lamentable flood; being a true, but woful relation, of the mighty rains, and overflowings of the stately rivers of Trent, Dove, and Severn, in several parts of the nation, and the number of men, women, and children, that perished by the force of this inundation. Likewise, the hideous noise and shrieks of poor scking babes and infants, that lay floting up and down the waters in their cradles, and the getting up of divers people to the tops of houses to save their lives. Together with the carrying away of great store of hay, pease, and beans, by the merciless streams; and the great loss and ruine of many cowes, horses, sheep, and oxen. (London, 1655)

Anon., The state of the case concerning the late Earl of Lindseys drayning the Fennes between Borne, Boston, and Lincolne (London, 1650)
Anon., To the honorable assembly of the Commons House of Parliament The humble remonstrance of the benefits of dryning fenne lands in the severall counties of Yorke, Lincolne, Cambrige, Norfolke and Huntingdon. (London, 1628)

Badeslade, Thomas, The History of the Ancient and Present State of the Navigation of the Port of King’s Lyn and of Cambridge (London, 1725)

Banbury, Oxfordshire, To our wel-beloued friends, to whom this present writing shall come. Wee the Maior, Iustices, Minister, Aldermen, and Burgesses of the Borough of Banbury in the county of Oxon. wish all welfare and happinesse. (London, 1628)

Banks, John, Sir John Banks his Report to KING CHARLES concerning the Employing all the Poor andidle Persons of the Nation, and concerning the Commons, Anno 1637. when he was Attorney Generall. (London, 1637)

Blagrave, Joseph, New additions to the art of husbandry comprizing a new way of enriching meadows, destroying of moles, making tulips of any colour : with an approved way for ordering of fish and fish-ponds (London, 1675)

Blith, Walter, The English improver, or a new survey of husbandry. Discovering to the kingdome, that some land, both arrable and pasture, may be advanced double or treble; other land to a five or tenfold: and some to a twenty fold improvement: yea, some now not worth above one, or two shillings, per acree, be made worth thirty, or forty, if not more. Clearly demonstrated from principles of sound reason, ingenuity, and late but most certaine reall experiences. Held forth under six peces of improvement: viz. 1. By floating or watering such lands as are capable thereof. 2. By reducing boggy or drowned land to found pasture. 3. By such a way of ploughing and corneing old courser pasture, as not to impoverish it; and by such a method of enclosure, as shall provide for poore, and all interests without depopulation. 4. By discovering divers materials for soyle and compost, with the nature and use of them, as both tillage and pasture be advanced as high as promised. 5. By such a new plantation of divers sorts of woods, as in twenty yeares, they shall rise more than in forty yeares naturally. 6. By a more moderate improvement of other sorts of lands, according to their capacities they lye under, by more common experiences. (London, 1649)

Blith, Walter, The English Improver Improved, or, The svrvey of hvsbandry svrveyed discovering the improueableness of all lands some to be under a double and treble, others under a five or six fould, and many under a tenn fould, yea, some under a twenty fould improvement (London, 1653)

Blome, Richard, The gentlemans recreation in two parts (London, 1686)

Callis, Robert, The reading of that famous and learned gentleman, Robert Callis Sergeant at Law upon the statute of 23 H.8, Cap. 5, of Sewers, as it was delivered by him at Grays-Inn in August, 1622. (London, 1647)

Charles I of England, His Majesties answer to the nineteen propositions of both Houses of Parliament (Cambridge, 1642)

Cowell, John, The interpreter: or Booke containing the signification of vvords wherein is set forth the true meaning of all, or the most part of such words and termes, as are mentioned in the lawe vvriters, or statutes of this victorious and renowned kingdome, requiring any exposition or interpretation. (London, 1607)

Dalton, Michael, The countrey justice, containing the practice of the justices of the peace out of their sessions gathered for the better help of such justices of peace as have not been much conversant in the study of the laws of this realm : now again enlarged, with many precedents and resolutions of the quaere’s contained in the former impressions (4th edn, London, 1655)

Day, Thomas, WWonderfull straunge sightes scene in the element, ouer the citie of London and other places on Munday being the seconde day of September: beginning betweene
eight and nine of the clocke at night, increasing and continuing till after midnight: most strange and fearfull to the beholders. (London, 1583)

Defoe, Daniel, An essay on projects (London, 1697)

Digges, Leonard, A geometrical practise, named Pantometria divided into three booke, longimetra, planimetra, and stereometria, containing rules manifolde for mensuration of all lines, superficies and solides: with sundry straunge conclusions both by instrument and without, and also by perspective glasses, to set forth the true description or exact plat of an whole region: framed by Leonard Digges gentleman, lately finished by Thomas Digges his sonne. Who had also thereunto added a mathematicall treatise of the fiue regulare Platonical bodies, and their Metamorphosis or transformation into fiue other equiliater vniforme solides Geometricall, of his owne invention, hitherto not mentioned of by any geometricians. (London, 1571)

Dodson, William, The designe for the perfect draining of the great level of the fens, called Bedford level, lying in Norfolk, Suffolk, Cambridge, Huntingtionshire, Northamptonshire, Lincolnshire and the isle of Ely as it was delivered to the honourable corporation for the draining of the said great level the 4th of June, 1664: as also several objections answered since the delivery of the said designe now in agitation: and as for the new works intended in this designe appears in the annexed map: and the charge of the whole calculated (London, 1665)

Dugdale, William, The history of imbanking and drayning of divers fenns and marshes, both in forien parts and in this kingdom, and of the improvements thereby extracted from records, manuscripts, and other authentick testimonies (London, 1662)

E.G., Wast land’s improvement, or certain proposals made and tendred to the consideration of the Honorable Committee appointed by Parliament for the advance of trade, and general profits of the Commonwealth (London, 1653)

Eliot, John, The arguments upon the writ of habeas corpus, in the Court of Kings Bench. Wherein, are learnedly discussed, not only the several branches of the said writ, but also many authorities as well of the common as statute law: and divers ancient and obscure records most amply and elaborately debated and cleared. Together, with the opinion of the court thereupon. Whereunto is annexed, the petition of Sir John Eliot Knight, in behalf of the liberty of the subject. (London, 1649)

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pasture, and all other plots doe concerne. And no lesse remarkable for all vnder-takers in the plantation of Ireland or Virginia (London, 1610)

Fuller, Nicholas, The argument of Master Nicholas Fuller, in the case of Thomas Lad, and Richard Maunsell, his clients Wherein it is plainly proved, that the Ecclesiasticall Commissioners haue no power, by vertue of their commission, to imprison, to put to the Oath ex officio, or to fine any of his Majesties subjects (London, 1607)

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Hall, Edward, The vnion of the two noble and illustre famelies of Lancastre [and] Yorke, beeyng long in continual discension for the croune of this noble realme with all the actes done in bothe the tymes of the princes, bothe of the one linage and of the other, beginnyng at the tyme of kyng Henry the fowerth, the first auctor of this deuision, and so successiuely proceadyng to the reigne of the high and prudent prince kyng Henry the eight, the vndubitate flower and very heire of both the sayd linages. (London, 1548)

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I.L., A discourse concerning the great benefit of drayning and imbanking, and of transportation by water within the country. Presented to the high court of Parliament by I.L. (London, 1641)

James I of England, Iames by the grace of God king of England, Scotland, France, and Ireland, defender of the faith, &c. to all and singuler archbishops, bishops, archdeacons, deanes and their officials ... greeting : whereas wee are credibly giuen to vnderstand aswell by the humble supplication and petition of our poore distressed subiects Amy Lynsteed, widdow, the late wife of William Lynsteed & Ioan the wife of Robert Morse (London, 1624)

James I of England, Iames by the grace of God king of England, Scotland, France and Ireland ... to all people to whomse these our letters patents shall come, greeting whereas we doe vnderstand that our marityne [sic] townes of Donwich, Southwold, and Walberswicke in our county of Suffolke, haue beene the most ancient coast townes of our said county ... (London, 1619)

Jones, William, Gods vvarning to his people of England By the great ouer-flowing of the vvaters or floudes lately hapned in South-wales and many other places. Wherein is described the great losses, and wonderfull damages, that hapned thereby: by the drowning of many townes and villages, to the vtt鳏ving of many thousandes of people. (London, 1607)

Jonson, Ben, The Devil is an Ass

Keill, John, An examination of Dr. Burnet’s theory of the earth: together with some remarks on Mr. Whiston’s new theory of the earth (Oxford, 1698)
Killigrew, William, Sr. William Killigrew his answer to the fen mens objections against the Earle of Lindsey his dryning in Lincolnshire (London, 1649)

Killigrew, William, [The rioters in Lindsey levell and their abettors] (London, 1655)

Killigrew, William, The late Earl of Lindsey his title by which himself, and his participants, do claim 24000. acres of land in the fennes in Lincoln-shire; and concerning which a bill hath pass’d the House of Lords, and is now with the Commons, impowering Sir Henry Heron and Sir William Killigrew to perfect their undertakings; the which, if it hath not been according to the particulars contained in this paper, the countenance of any member of this House is in no sort desired hereunto (London, 1661)

Knell, Thomas, A declaration of such tempestious, and outragious fluddes, as hath been in divers places of England. 1570 (London, 1571)

L.W., Strange and true news from Lincoln-shire, Huntinton-shire, Bedford-shire, Northampton-shire, Suffolk, and Norfolk with Wiltshire, and Sommerset shire, and many other places. Being a true relation of the great and many floods and inundations that happened in England, in December, and January, and March 1674. The smothering of people in snow; the drowning of many cattel, the beating down of bridges and houses, the washing up of corn by the roots, and drowning of many people. To the great loss and grief of many hundreds in this nation. Also an account of many great waters, that happened in the reigns of Henry the 3d. Edward the 2d. Henry the 4th. Henry the 6th. Richard the 3d. Henry the 7th. Henry the 8th. Queen Mary, and the unmercifull vwaters that fell in King Jame’s reign: as the book within doth more largely make mention. (London, 1674)

Markham, Gervase, The English husbandman: The first part: contayning the knowledge of the true nature of euery soyle within this kingdome: how to plow it; and the manner of the plough, and other instruments belonging thereto. Together with the art of planting, grafting, and gardening after our latest and rarest fashion. A worke neuer written before by any author: and now newly compiled for the benefit of this kingdome. (London, 1613)

Markham, Gervase, The second booke of the English husbandman Contayning the ordering of the kitchin-garden, and the planting of strange flowers: the breeding of all manner of cattell. Together with the cures, the feeding of cattell, the ordering both of pastures and meddow-ground: with the vse both of high-wood and vnder-wood. Whereunto is added a treatise, called Good mens recreation: contayning a discourse of the generall art of fishing, with the angle, and otherwise; and of all the hidden secrets belonging thereunto. Together vwith the choyce, ordering, breeding, and dyeting of the fighting cocke. A worke neuer written before by any author. (London, 1614)

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uttermost profits. Attained by trauell and experience, being a worke neuer before handled by any author: and published for the good of the whole kingdome. (London, 1620)

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N.N., *A narrative of all the proceedings in the drayning of the great level of the fens extending into the counties of North’ton, Lincoln, Nortfolk, Suffolk, Cambridge, and Huntington, and the Isle of Ely, from the time of queen Elizabeth untill this present May, 1661* (London, 1661)

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Payne, Robert, *The vale mans table* (London, 1583)

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Plattes, Gabriel, *A discovery of infinite treasure, hidden since the vworlds beginning Whereunto all men, of what degree soever, are friendly invited to be sharers with the discoverer* (London, 1639)

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Proctor, Thomas, *A profitable worke to this vvhole kingdome Concerning the mending of all high-wayes as also for vvaters and iron workes. Written by Tho: Procter Esquire.* (London, 1610)

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Speed, Adolphus, *Adam out of Eden or, an abstract of divers excellent experiments touching the advancement of husbandry* (London, 1658)

T.I., *A miracle, of miracles As fearefull as euer was seene or heard of in the memorie of man. Which lately happened at Dichel in Sommersetshire, and sent by diuers credible witnesses to be published in London. Also a prophesie revealed by a poore country maide, who being dead the first of October last, 1613. 24. hours, reuived againe, and lay fiue dayes weeping, and continued prophesying of strange euents to come, and so died the 5. day following. Witnessed by M. Nicholas Faber, parson of the towne, and diuers worthy gentlemen of the same countrey. 1613, withall, Lincolnshire teares. For a great deluge, in which fiue villages were lamentably drovvned this present month.* (London, 1614)

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Tusser, Thomas, *A hundreth good pointes of husbandry lately maried vnto a hundreth good poynnts of huswifery: newly corrected and amplified with dyuers proper lessons for householders, as by the table at the latter ende, more plainly may appeare: set foorth by Thomas Tusser Gentle man, servaunt to the right honorable Lorde Paget of Beudefert.* (London, 1570)

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Vermuyden, Cornelius, *A discourse touching the drayning the great fennes, lying vvithin the severall counties of Lincolne, Northampton, Huntington, Norfolke, Suffolke, Cambridge, and the isle of Ely, as it was presented to his Majestie. By Sir Cornelius Vermaüden Knight. Whereunto is annexed the designe or map.* (London, 1642)

Weston, Richard, *A discours of husbandrie used in Brabant and Flanders shewing the wonderfull improvement of land there; and serving as a pattern for our practice in this Common-wealth* (London, 1650)

Whateley, William, *Sinne no more, or a sermon preached in the parish church of Banbury on Tuesday the fourth of March last past upon occasion of a most terrible fire that happened there on the sabbath day immediately precedent* (London, 1628)

Wood, Anthony, *Athenae Oxonienses: an History of all the Writers and Bishops who have had their Education in the most famous University of Oxford from 1500 to 1690 (2 vols, London, 1691–2)*

Worldge, John, *Systema agriculturae the mystery of husbandry discovered : wherein is treated of the several new and most advantagious ways of tilling, planting, sowing, manuring, ordering, improving all sorts of gardens, orchards, meadows, pastures, corn-lands, woods & coppices and of all sorts of fruits, corn, grain, pulse, new hays, cattel, fowl, beasts, bees, silk-worms, &c. : with an account of the several instruments and engines useful in this profession : to which is added, Kalendarium rusticum, or, The husbandmans monethly directions : also the prognosticks of dearth, scarcity, plenty, sickness, heat, cold, frost, snow, windes, rain, hail, thunder, &c., and Dictionarium rusticum, or, The interprettation of rustick terms / published for the common good* (London, 1669)

Worsop, Edward, *A discouerie of sundrie errours and faults daily committed by lande-meaters, ignorant of arithmetike and geometrie, to the damage, and preiudice of many her Maiessties subjects with manifest prooue that none ought to be admitted to that function, but the learned practicioners of those sciences: written dialoguewise, according to a certaine communication had of that matter. By Edward Worsop, Londoner. Every one that measureth land by laying head to head, or can take a plat by some geometricall instrument, is not to be accounted therfore a sufficient landmeater, except he can also prooue his instruments, and measurings, by true geometricall demonstrations.* (London, 1582)

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