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'Instead of fetching flowers, the youths brought in flakes of snow': exploring extreme weather history through English parish registers

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ABSTRACT

Parish registers provide organized, dated and located population data and as such, are routinely among the most frequently consulted documents within the holdings of county record offices and archives. Throughout history, extreme weather has had significant impacts on the church, its congregation, and local landscape. It is for these reasons that extreme weather events have been deemed worthy of official note by authors of many registers. Although isolated entries have been used as supporting evidence for the occurrence of a number of historic extreme weather events, the information that parish registers contain relating to weather history has not been studied in its own right. Parish register narratives add new events to existing chronologies of extreme weather events and contribute to our understanding of their impacts at the local level. As public and well used documents they also function to keep the memory of particular events alive. The examples in this paper cover a wide range of weather types, places, and time periods, also enabling recording practice to be explored. Finally, as the number of digitized registers increases, we highlight the risks of weather narratives being obscured, and reflect on how the weather history contained within might be systematically captured.

KEYWORDS

Parish register; extreme weather; digitization; county record office; memory

Parish registers as sources for weather history

Parish registers are the principal source of information regarding baptisms, marriages and burials before national registration began in England and Wales in 1837 and, as such, are probably the most important source for researching family history from the sixteenth century onwards. Louis Henry and Michel Fleury pioneered their use in developing the technique of family reconstitution in the 1950s and 1960s, when the 'availability and universality' of parish registers made them, 'a precious source for investigating the demographic conditions in pre-industrial France.'[1] In this early work, Henry was dependent on the labour of a large and largely volunteer workforce and today, a key strength of the source remains its

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'accessibility to non-specialists.'[2] Following the pioneering work of the Cambridge Group for the History of Population and Social Structure (CAMPOP) on English registers, scholars have used parish register data on baptisms, marriages and burials to research an imaginative array of topics including: mortality and morbidity, epidemiology and infant mortality, family and household structure, illegitimacy, marriage seasonality, surnames, occupations and industry, mobility, literacy and parish history.[3] Local and family historians have also carried out a tremendous amount of in depth and sustained research on parish registers, producing well used transcriptions and indices.

The publication of a number of directories or guides to parish registers has been enormously helpful in providing those interested in the history of the environment, climate, and weather, with a way into the vast source, by revealing the location of weather narratives.[4] In the nineteenth century parish registers were also frequently used in the compilation of chronologies of weather.[5] In *Natural Phenomena and Chronology of the Seasons*, founder member of the Royal Meteorological Society, Edward Lowe, recognized that, 'the more striking phenomena were frequently entered in parish registers, especially where any damage resulted either to the church or to any important edifice in the parish.' He also noted that, 'to examine all parish registers throughout Great Britain would be a task not easily accomplished.'[6] Whilst compiled on a different basis to English registers, climatologist Hubert Lamb included weather extracts from registers from Iceland and Sweden in his essay *Our Changing Climate, Past and Present*, first published in 1959. In *The Use of Historic Records for the Augmentation of Hydrological Data*, a report for the Institute of Hydrology (1978), H.R. Potter (taking his examples from Cox, 1910) explained,

> A considerable amount of weather and occasionally flood information has been found incorporated with the records of the births, deaths and marriages. Several parish registers preserve accounts of the great winter snow of 1614-15, as for example at Youlgrave, Derbyshire, and Beeston-next-Mileham, Norfolk, while the parish register for Ubley in North East Somerset records the great frost of 1683-84, noting such details as 'digging a grave in frozen ground took one man two days,' and that snow was 'still to be seen on Mendip in midsummer.'[7]

The potential of parish registers for climate history research has recently been recognized and they have most commonly been used as a source of historical hydrological information. Bayliss and Reed include examples taken from published sources in their (2001) report for the Ministry of Agriculture, Farming and Fisheries on *The Use of Historical Data in Flood Frequency Estimation*, in which they urge caution relating to the authenticity of some parish register material, particularly in terms of the accuracy of dates.[8] The temporal depth and resolution that parish registers offer is a large part of their appeal. For Williams and Archer, aiming to improve flood risk assessment in the English Midlands, parish register accounts allowed them to extend their history of flood occurrence on the River Sence (Leicestershire) back to the sixteenth century.[9] Zong and Tooley discovered some rich narratives in their speculative investigations of parish registers, aiding their construction of a historical record of coastal floods in Britain, and Morgan has used parish registers alongside printed material and woodcuts to explore flooding in early modern England from a social-cultural perspective.[10] Sixteenth and seventeenth century narratives of extreme events have attracted particular attention, for example the Bristol Channel floods of 1607.[11]

Particular registers have also attracted sustained attention, for instance those for Beetham, Cumbria, compiled by the Reverend William Hutton, where 'Environmental information usually occurs on the lower half of a page after the year's registration entries and consists mainly of references to snow, frost, floods, wind, thunderstorms and earthquakes.'[12] The located

nature of the majority of register narratives further adds to their value, and makes them easy to map. The geographical specificity of the accounts and their 'parochial relevance,' has been emphasized as they detail the effects of extreme weather 'on locally important customary and communal arrangements,' often-including reference to 'particularly local landmarks,' giving a clear sense of place.[13]

In recent years, the broader value of parish registers for historical weather and climate information of all kinds, and for a range of time periods, has been acknowledged, certainly across Western Europe. Brázdil and co-authors describe European parish registers as 'a special class of weather record.'[14] They are top of Eden's list of 'proxy data' for the pre-instrumental period in his review of traditional weather observing in the UK, and Macdonald et al., acknowledge their utility in a review of Welsh sources.[15]

There is also a growing body of work that uses demographic data from parish registers to draw links between population dynamics, food prices, subsistence crisis, and periods of extreme weather. Lamb drew on both descriptive and demographic statistical information from parish records throughout Europe in *Climate, History and the Modern World* (1982).[16] Remarks accompanying the data can also allow us to infer periods of bad weather, for example, when burials are delayed as a result of frozen ground.

Parish registers have always been public and communal documents. Using Tate's terminology, Morgan points out that, despite being locked away for many years in the 'parish chest,' parish registers were generally accessible to those who wished to consult them.[17] Today they function as a record of the community or a public history. As Stubbs highlighted, 'Every parish must have a history, every parish has a register, every person has a parish.'[18] It is important to note that other documents within the category of ecclesiastical records also contain relevant information useful for weather and extreme weather history. Examples include vestry minutes detailing the timing of the harvest; church court records detailing weather in the early modern period (for example, tithe, defamation and matrimonial cases); presentment bills and churchwardens' accounts listing the costs of weather related repairs to the church, typically storm damage to the roof and steeple or damage to flooring caused by flooding; as well as disbursements made to the local poor by overseers during periods of severe weather and monies collected by parishes in response to church briefs. By the end of the nineteenth century, Sunday school records and service registers entered onto printed forms allowed space for weather notes alongside attendance figures and congregation size.[19]

The flourishing of record society publishing between 1880 and 1954 expanded the audience for parish registers and they continue to be popular subjects for volumes.[20] It is important to also recognize the establishment of separate societies dedicated to the publication of parish registers. Following the transfer of the majority of registers into county record offices post-1945, the utility and popularity of parish registers as a research resource meant that the majority of registers were copied onto microfiche or film – the format in which most people still consult them today. The Church of Jesus Christ of Latter-day Saints produced many of the early films, with record offices undertaking subsequent projects as a reaction to sharp increases in demand.[21] Practices of publishing and filming have facilitated access, largely on a self-service basis, and prevented damage to the original registers. More recently, CD-ROM and online digital versions have become available through the dedicated work of family history and local record societies, genealogical subscription websites, and also through a growing number of free, volunteer-led sites or county record office and archive websites.[22] The demand for digital versions has been created by a desire for access from a distance, as

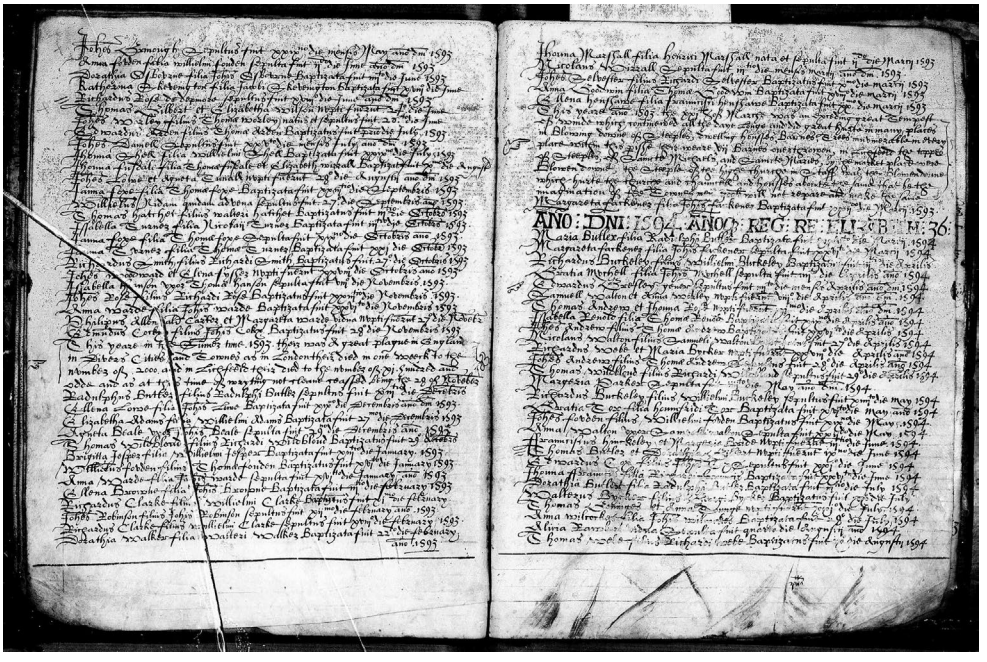

Figure 1. *Annales Aldervasenses*, Register of baptisms, marriages and burials for All Saints, Alrewas, 1547–1747, D783/1/1/1, Staffordshire Record Office (SRO). Reproduced with the permission of SRO.

well as reported difficulties in reading microforms. The task is enormous, yet online databases of register entries have already revolutionized genealogy.[23] The impact of digitization on the use of parish registers for weather history is discussed below.

Public narratives of weather

Many authors of parish registers, usually either the parish priest or an appointed official, felt it important, and in some cases were actively encouraged, to record events of local or national significance, including weather and weather-related events as they affected parishioners and the church, alongside entries of baptisms, marriages and burials. Parish registers, however, are far from complete records of extreme weather. As Tufnell found in relation to the Beetham registers, known and important environmental events can be absent, even from the registers kept by those with an obvious interest in the weather, adding 'to the problems of evaluating the significance of those events which actually feature in the registers.'[24] The memoranda, 'as chronicles of communal memory and experience … provide a vibrant counterbalance to the laconic style of the bureaucratic purpose of the registers.'[25] They detail the relationship between society and the natural world, and in many cases are well described as 'environmental histories.' A notable example is the original register for All Saints, Alrewas, Staffordshire (1547–1747) that is titled on an opening page *Annales Aldervasenses* (Figure 1).[26] The accounts of weather recorded in the Alrewas parish register are contemporary with events and are written in secretary hand in chronological order along with the baptisms, marriages and burials in the sixteenth and seventeenth centuries. They are often highlighted by the illustration of a small hand pointing to the entry. The accounts which refer to weather

Table 1. Summary of parish registers consulted and the extreme weather events they detail.

City/county archive	Parishes consulted	Extreme weather events detailed within register (date)
Central England		
Birmingham City	St Laurence	Gale (1908)
Derbyshire	Ashbourne	Wind (1715), flood (1715)
	Barrow	Frost (1683)
	Baslow St Ann	Flood (1706), storm (1749), flood (1799), snow (1802)
	Chapel-en-le-Frith	Wind (1715), snow (1716), aurora (1716)
	Darley Dale	Snow (1614–1615), cold (1616)[c], cold (1638), frost (1676–1677)
	Eyam	Snow (1692), snow (1743)[c]
	Kirk Ireton	Tornado (1811)
	Monyash	Cold (1772)
	Morley	Frost (1614–1615), drought (1615), comet (1618)[c]
	St Werburgh's Derby[c]	Flood (1673)
	Willesley[c] (now Leicestershire)	Cold (1684)
	Winster	Snow (1615), drought (1615)
	Youlgreave	Snow (1615), drought (1615)
Gloucestershire	Arlingham	Flood (1561), flood (1607), great heat (1607), frost (1607), flood and inundation (1628), flood (1629)
	Elmore	Flood (1770)
Herefordshire	Aymestry	Flood (1770), frost and flood (1795)
	Bredwardine and Brobury	Flood (1795)
	Byford	Flood (1795)
	Foy	Flood (1770), flood (1782)
	Tarington	Wind (1658)
Leicestershire	Prestwold	Flood (1587)
	Wistow	Rain and flood (1588), flood (1618)
Lincolnshire	Alkborough	Drought (1713), great wind and eclipse (1714), hail (1741)
	Benington in Holland	Excellent harvest (1801), poor harvests (1799, 1800)
	Glentham	Mild winter (1809–1810), mild autumn (1811)
	Morton by Bourne	Storm (1800)
	Old Bolingbroke	Snowstorm (1709), wind (1715), snow and frost (1715), drought (1719)
	Orby	Gale (1833), gale (1834), storms (1834), drought and lack of wind (1834), storms (1835), late frost and snow (1835)

(*Continued*)

Table 1. (*Continued*).

City/county archive	Parishes consulted	Extreme weather events detailed within register (date)
Northamptonshire	Boughton[c]	Hailstorm (1607)
	Bugbrooke	Drought (1705)
	Clipston	Early spring (1791), mild winter (1794), sharp frost (1795), earthquake (1795), mild winter (1795–1796), severe winter (1799), backward spring and cold wet summer (1799), fine harvest (1801), great heat (1803), thunderstorm/fireball (1803), great heat (1808), storms (1810), cold winter and mild spring (1813), drought (1818), late and cold spring and wet summer (1816), thunderstorm (1821)
	Etton[c]	Wet summer (1616), snow (1617)
	Lowick[c]	Late snow (1713)
	Peakirk	Flood (1768)
	Rothwell[c]	Earthquake (1750)
	Stamford Baron	Snow (1614–1615)
	Thorpe Malsor	Hailstorm (1851), earthquake (1863), shooting stars and meteors (1866), drought (1868 with Refs. back to 1818 and 1826 droughts), dry summer (1869), dry summer (1870), aurora (1870), thunderstorms (1870), thunderstorm (1872), drought (1874), thunder/hail storm (1875)
	Wicken	Storm (1857)
Nottinghamshire	Calverton	Dry summer (1731), May snow (1731), dry summer (1733), wet summer (1734), wet summer (1735), dry summer (1736), dry summer (1737), wet spring (1739), frost (1739–1740), dry summer (1740), severe winter (1740–1741), dry summer (1742), severe winter (1742–1743), drought (1743), remarkable harvest (1759), frost (1759–1760), misty and dark (1761), deep snow (1762), dry summer (1762), severe dark and misty winter (1762–1763), wet summer (1763), frost and flood (1763–1764), dry summer (1765)
	Rolleston	Rain and flood (1588), frost (1590) plentiful spring (1590), tempest/wind (1592), frost and snow (1590), drought (1591), wind (1715)
Rutland	Wing[c]	Frost (1683)
Shropshire	Albrighton	Wind (1698)
	Donington	Storm and hurricane (1696), wind (1700), wind (1701), storm (1703), Lightning (1785)
	Eaton-under-Heywood[c]	Hailstorm (1807)
	Much Wenlock	Storm and flood (1545), storm (1594)
	Prees[c]	Flood and frost (1795)
	Shawbury	Snow (1594)
	Tasley	Flood (1662)
	Tong	Snow (1716–1717), eclipse (1717)
	Wem	Storm of thunder and lightning (1672), frost (1739), frost (1743)
	Whittington	Landslip (1773), storm (1774), dry spring (1775), earthquake (1775), heavy snow/freeze (1776), dry spring (1776), cold spring & summer (1777), hot & stormy (1778), wind (1779), dry summer (1780), severe winter & haze (1782–1783), great heat (1793), frost (1795)
Staffordshire	Alstonfield	Snow (1615), snow (1664), flood (1658), snow (1664), comet and drought (1680–1681)
	Alrewas	Drought (1581), tempest (1593), frost & flood (1607), flood (1609), tempest (1613), hailstorm (1644), frost and snow (1783), waterspout (1792 in Worcs), drought (1794), frost, snow and flood (1794–1795), gale (1795), earthquake (1795), storm (1795), sudden change from mild to frost (1796), hailstorm (1796), flood (June & October 1797), storm & fireball (1797), fine harvest (1801), gale (1802), whirlwind (1804), storms (1806), snow (1809)
	Bilston	Hail and rain storm (1715), meteor (1719), storm (1729)
	Castle Church, Stafford[c]	Wind (1593), wind (1627)
	Mucklestone	Snow (1614–1615), drought (1619), drought (1624)
	Tamworth	Flood (1795), cold & wet (1799), freeze (1803)

Warwickshire	Sutton Coldfield[a]	Flood (1668)
	Welford-on-Avon	Flood (1588)
Worcestershire	Droitwich St Peters	Frost (1850), late snow (1851), cold spring (1852), heat, storm and flood (1852), frost (1853), comet (1854), frost (1854–1855), heat (1856), thunderstorms and comet (1858), frost and snow (1859–1860), cold and wet summer (1860), severe winter (1860–1861), drought (1864 with reference to 1826), heat (1865), meteor shower (1866), frost (1867), gales (1868), mild winter (1868–1869), hot dry summer (1869), aurora (1870), frost (1870), thunderstorms (1872), drought (1874), rain (1876), rain and late frost (1877), heat (1878), severe winter (1878–1879), wet and sunless summer (1879), frost (1881), wet and sunless (1882), rain (1883), sunsets (1883), drought (1884), flood (1886), snow (1887)
	Rock	Bad harvest (1799), good harvest (1801)
	Stoulton	Meteor (1719)
	Welland	Wet summer (1839)
East Anglia		
Norfolk	Beeston-next-Mileham	Snow (1615)
	Bilockby	Storm (1762)
	Blakeney	Snow (1698), hail storm (1772), gale and high tide (1779)
	Frettenham	Severe winter (1844–1845), mild winter (1846), early harvest (1846), mild winter (1847–1848), mild winter (1848–1849), late frosts (1849), cold spring (1850), mild winter (1851–1852), drought (1852), floods (1852), hot summer (1859), cold spring and summer (1860), severe winter (1860–1861), dry summer (1861), hot and dry (1864), drought (1868)
	Hockham	Storm at sea (1695)
	Methwold	Storm (1703)
	Raveningham	Snow (1712), snow (1713), wind (1713), late snow (1767)
Suffolk	Bungay[a]	Storm (1577)
	Framlingham[c]	Flood and snow (1614–1615)
South-West England		
Devon	Barnstable[c]	Storm and high tide (1606–1607), freeze (1607)
	Bratton Fleming	Drought (1829)
	Broadhembury	Frost (1739–1740), snow and frost (1783–1784)
	Dartmouth St Saviours	Frost (1814)
	Down St Mary	Snow and storm (1821), mild winter, great summer heat and abundant harvest (1822), wet and cold summer and poor harvest (1823), rain and wind (1824), excessive heat (1824), hailstorm (1824), storm and high tide (1824), dry summer (1825), storm (1830)
	Exeter St Pancras[c]	Earthquake (1727)
	Exeter St Thomas	Flood (1800), flood (1810), frost and snow (1819–1820), flood (1875)
	Kentisbeare	Gale (1836), drought (1835), storm (1861), storms (1866), drought (1866)
	Poltimore	Frost and snow (1881 with reverence to 1814)
	Uffculme	Snow (1776), summer frost (1789), late snow (1790), rain (1798), severe winter (1798–1799), late spring (1799), flood (1799), storm (1808), late snow (1809)
	Whitestone	Storm (1754), storm (1777)
Somerset	Ubley[c]	Frost and snow (1683)

Table 1. (*Continued*).

City/county archive	Parishes consulted	Extreme weather events detailed within register (date)
Wiltshire[b]	Branshaw	Storm (1811)
	Cholderton	Wind (1703)
	Christian Malford	Storm (1693)
	Collingbourne Ducis	Hurricane (1703), dry winter (1704–1705), mild winter and sickness (1707–1708), dry (1714), dry (1854–1855)
	Heddington	Great frost (1607)
	Highworth	Mild winter (1732–1733), storm (1735), storm and flood (1736), storm (1739), frost (1739), wind (1740), great heat (1808)
	Holt	Cold winter and sickly the following summer (1728–1729)
	Imber	Flood (1768), late snow (1774)
	Keevil	Storm (1794)
	Landford	Wind (1690)
	Leigh	Frost (1693), snow and frost (1698), great light (1722), snow (1740)earthquake (1775), wind (1781)
	Long Newnton (now Gloucestershire)	Frost (1683), dry summers (1684, 1685), wet harvest (1687), flood (1688), dry summer (1689), hail storm (1689), rain and flood (1696), late snow (1698), dry summer (1699), hurricane and flood (1703), dry spring (1705), early spring (1706), dry spring (1707)
	Ludgershall	Flood (1764)
	Manningford Abbots	Late snow (1809)
	North Tidworth	Referenced to spring water availability and movement of River Bourne (1809–1828), late wet harvest (1816)
	Rowde	Tempest (1703)
	Stanton St Bernard	Hurricane (1735), frost (1739)
	Steeple Langford	Storm (1703), tempest (1703)
	Stockton[a]	Gale (1735)
	Tisbury	Storm (1762), lightning (1795)
	Urchfont	Late snow (1695), late snow (1809)
	Wanborough	Late snow (1759)
	Warminster	Severe weather (1778)
	Westport	Heavens in flame (1716)
	Whiteparish	Frost and snow (1784)
	Woodford	Snow (1784), freeze (1788)
	Wyle	Rain and flood (1768)
Other		
Cumbria	Askham[c]	Snow (1767)
	Beetham[d]	Various
Durham	St Oswald, Durham[c,e]	Hurricane (1703)
	Whitburn[c]	Tempest (1596)
Hampshire	Holy Rood, Southampton[c,e]	Frost (1683)
Kent	Hunton[c]	Storm (1746), storm (1763)
	St Mary Magdalene, Canterbury[c]	Wind (1703)

Northumberland	St Andrew, Newcastle[c]	Eclipse (1699)
	St Nicholas, Newcastle[c]	Eclipse (1597)
	Warkworth[c]	Storm (1784), storm (1785), storm (1794)
Sussex	Crowhurst[c]	Comet (1680)
Yorkshire	Almondbury[c]	Snow (1614–1615 with reference back to 1540)
	Brignal[c]	Solar eclipse (1652)
	Cherry Burton[c]	2 suns (1684), earthquake (1687–1688), tempest (1692), 2 suns (1696)
	Hackness[c]	Storm and wind (1660), comet (1662)
	Howden[c]	Rain and flood (1655), freeze (1655)
	Wintringham	Wind (1715)

Notes:Where the authors have not consulted the original or published register numbers in superscript indicate the source.
[a]Lowe, *Natural Phenomena*.
[b]Unless specified otherwise, all Wiltshire narratives are from Hobbs, *Gleanings from Wiltshire*.
[c]Cox, *The Parish Registers*.
[d]Tufnell, "Environmental Observations."
[e]Waters, *Parish Registers*.

events in the late eighteenth and early nineteenth centuries are also contemporary with the period and are generally in order. However, some are in the margin or given as 'N.B.' at the top or bottom of the page, so they could have been inserted retrospectively. An 'Abstract of remarkable Occurrences' extracted from the parish register features in Stebbing Shaw's, *The History and Antiquities of Staffordshire* under the topographical entry for Alrewas, reflecting the frequent interest of antiquarians in natural and local history.[27] In the eighteenth century Bishop Kennett of Peterborough (1718–1728) is said to have encouraged his clergy to note down, 'any notable incident of times and seasons, especially relating to your own parish, and the neighbourhood of it, such as storms and lightning, contagion, and mortality, drought, scarcity, plenty, longevity, robbery, murders, or the like casualties,' in order that the registers would become, 'chronicles of many strange occurrences that would not otherwise be known, and would be of great use and service for posterity to know.'[28]

The examples discussed in the following sections indicate that the practice of including accounts of extreme or impactful weather and weather-related events was widespread and undertaken by clergymen since the introduction of parish registers in the sixteenth century. Hobbs suggests that 'the practice of annotating developed rather slowly, as the registers came to be regarded less as a central government imposition and more as a parish record that could be adapted for local needs.'[29] The weather could be notable in its own right as a specific memorandum, as well as being included as a descriptor or explanation in official notices of baptisms, marriages and burials, or in events involving parishioners. An example of each taken from Cox's directory:

> 1715-16 (Chapel-en-le-Frith, Derbyshire), February 1. On that day there was an extreme wind. It blew the weathercock off the steeple and brake it in pieces, and a great Ash down in the Church- yard; with vast great loss to most people in their houses, some being blown downe.
>
> 1662 (Tasley, Shropshire), December 16. John son of John Craffe and Ann, of the p.[parish] of Morvell [Morville], was bap. here, there being a great flood that day, soe that they could not goe to their parish Church.
>
> 1655 (St. Mary's, Reading), December 15. Cathere Eldridge a servant and Mary Welbanck, a chield, drowned together att the second bridge from the Beare for want of a raile to the bridge in frosty weather.[30]

During the course of research for a broader case study-based historical investigation into extreme weather in the United Kingdom, we have frequently been directed to information within English parish registers.[31] Catalogue entries, manuscript compilations of extracts themselves now archived, and the published volumes already mentioned, often state the presence of entries relating to the weather within particular registers. Weather terms are easily recognizable and effectively seem to stand out to the reader and cataloguer from the routine entries, though they are of course entirely absent from many parish registers. Table 1 summarizes the narratives we have consulted.

This article expands on the existing body of secondary literature, meteorologically, geographically, and temporally, to review accounts of all types of weather from registers across England, and identify emergent themes, before offering an assessment of their potential contribution to national weather history. Five main types of weather narrative are identified, dealing with: harvests and food prices; death, disease and accident; damage to the built environment of the church and immediate vicinity, including roads, bridges and other forms of local infrastructure; particularly notable extremes; and personal curiosity with weather.

The weather events located date from 1545 to 1908 (registers introduced in 1538). Some registers include one off memoranda detailing single events; others include sections that more resemble weather diaries kept over a number of years.[32] All accounts are dated to a year, and many provide very detailed time and location specific information relating to impacts on people, animals, and the built and natural environments.[33] Details of impacts are usually restricted to those within the parish, but occasionally refer to other places nationally or in Europe, often around the North Sea region, probably as featured in the contemporary press or in response to the issuing of Church Briefs.[34] Meteorologically, accounts of storms, strong winds, and extreme cold or frost events are most numerous. Mentions of unseasonably fine and mild conditions are perhaps more common than one would expect, pointing to the interests of the clergy in the natural world over several centuries, the timing of flowerings of trees and garden crops being common observations. Instrumental data is rare.

Weather narratives emerging from parish registers

Harvests and food prices

Weather has played a crucial role in the timing and success of agricultural operations, most notably the harvest, throughout history. Sudden onset weather events including hailstorms and floods could damage, destroy or simply wash away crops and livestock, instantly wiping out sources of income or the ability to earn a living. Register narratives, like the one below from Bilston in Staffordshire, are valuable in reconstructing the temporal and geographical anatomy of events, as well as capturing detailed impacts:

> 20th June, 1715, being Monday between the Houres of 3 & 5 in the Afternoon very great Quantities of Hail & Rain (accompanied with Lightning & great Thunder Claps) fell in & abt Ettingshall in Sedgley parish & wtin the Liberty or Constablewick of Bilston. The Hail-Stones were of Unusuall Biggness it was said that some of them were Seven Inches abt. as to my own particular I measured Several. Some of wch were 2 or 3 Inches abt. & One I measured that was Five Inches in Compass. The Hail-stones were of the Consistence of Ice, & in the places above-mentioned tis not doubted but that to Corn & other Tillage it did Damage to the value of Five hundred poundes, & such prodigious Quantity of Water was in the Streets that thee Oldest man Liveing never saw thee Like. Damage also was done in some Neighbouring places, but the Storm did not Extend very far.[35]

There is also information concerning community salvage or rescue efforts. After intense rainfall on 17 November 1770 the River Severn broke its banks at Elmore, Gloucestershire and whilst many were forced to evacuate their homes, 'the Farmers pensively beheld their Corn and Hay buried in the great waters.' The damage – much of it relating to stores of agricultural produce – became clear the following day:

> Indeed the Scene this Day was truly affecting; some in Boats leading Beasts half-drowned out of their once dry Grounds; Others picking up their household Goods which were now afloat & going away. Almost all the Cyder both new and old was damaged, the hoarded Apples Carried away, the Clean wheat in the bags wetted, the Cheese on the lofts, and the Butter in the Dairy hurted, and the Corn & Hay Ricks up to the Eaves in water, the Barns and Threshing floors Cleanly washed.[36]

Less extreme, but still unseasonable weather could also have serious impacts at the local scale, particularly when successive seasons or years proved unfavourable for the growth or harvest of crops, thereby diminishing seed and grain stocks. The register from Uffculme, on the edge of the Blackdown Hills in Mid Devon, documents how,

> In the year 1798 it began raining on the 29th June (Peter's Fair Day) and continued to rain for thirty-two days more or less every day, which occasioned all the mown hay to be completely spoiled and the wheat crop from being overripe to be but little better than straw.

The following spring, 'was the latest ever known, as the apple trees were in full bloom at the beginning of June' and:

> The rain which fell during this summer was more frequent and much heavier than ever remembered by anyone living and the floods during the months of July, August & September were as high as they usually are in winter. A very great part of the mown hay was washed off the land … and a greater so covered with mud as to be of little value.

Although winter 1799–1800 was relatively mild, food prices began to rise dramatically. The summer of 1800 was 'remarkable for its drought & heat' and, 'for fourteen weeks from May to the night of the 19th of August there was not rain sufficient to lay the dust.' As Reverend James Windsor explained, 'All these causes combined provided the great scarcity of 1801 when in May & June, wheat, where it could be sold, at 22s per bushel, barley from 12 to 14s and potatoes at 14s per bag.' The Uffculme account also tells us something of the local community response to these high prices:

> The poor were obliged to live on milk which, at the request of the magistrates and inhabitants was sold to them by the farmers and pilchards were delivered to them weekly by the overseers at the workhouse instead of their pay, as the usual articles of food, bread, cheese, beans &c could not be purchased with money and the bakers were authorised to sell mined bread made of potato, peas, wheat, barley, beans or oats. The scant supply & bad quality of their food caused a putrid fever among the poor of whom great numbers died & the burials this year were more numerous than in any other.[37]

The implications of poor weather on the cost of basic foodstuffs affected the livelihoods of many, and it is this relationship that accounts for the interest in the prices of grains, meat and dairy products demonstrated by multiple authors of parish registers.[38] It is of course impossible to isolate the influence of the weather from other causal factors including war, political change, or economic depression.

Death, disease and accident

Parish registers often provide details of weather as it was believed to have affected the health and wellbeing of the parishioners and of the vicars themselves. Extreme weather events could directly cause the death of parishioners, for instance as a result of being caught in floods, deep snows, or working in the fields during heatwaves. At Alstonfield in the north Staffordshire Moorlands, close to the border with Derbyshire, it was recorded that on 27 December 1658, 'Widow Baylie, a poore woman' of the nearby parish of Sheen, who had been coming from Lee Hall on Christmas Day morning was drowned in the river Dove, in the ford at the Load End. The register provides detailed insight into her demise, riding behind her daughter and the water being very high, she fell backwards into the water and her body was carried down river until it was recovered at Milldale.[39]

In the parish of Old Bolingbroke in the East Lindsey district of Lincolnshire the winter of 1714–1715 included a 'very great snow' that was deemed 'almost as great as one as had been known in the memory of man.' Several persons perished upon the roads, the register noting that two men had been found dead in the Fenland between Old Bolingbroke and Boston.[40]

Registers also draw indirect links between the full range of atmospheric phenomena (including the appearance of comets, eclipses and the aurora borealis), and ill-health.[41] Another example from Alstonfield is the entry that records the appearance of 'A very strange and fiery meteor in form like a sword' that appeared in December 1680. 'Kirch's comet' continued for six weeks, after which ensued a tedious and long drought that began on the 10 April 1681 and continued until the 20 June. 'The wisest thought' that this form of weather extreme was responsible for the pestilential diseases such as 'agues, strong Feavours, smallpox, cum multis aliis, of which many died in the country, chiefly in great cities and towns corporate.'[42] The continued belief that summer drought and mild winters were rather bad for health is evidenced in the Bugbrooke register. In this Northamptonshire parish, a memorandum records that in the year 1705 the children of the parish were badly affected by sickly 'agues, chin cough and the measles' and that 'apoplectic fits were very rife,' because the summer had been 'very droughty and the winter without any considerable frost, rain or snow.'[43]

In Old Bolingbroke, Lincolnshire, excessively dry weather in 1719 was linked to the ill health of parishioners and even of fellow vicars. In what was a 'very remarkable dry year such as had not happened in the memory of man,' the hay harvest was the smallest ever was known, and people had been so badly affected with 'agues and fevers that it was with great difficulty and expense that hands enough cud be obtain'd to get in harvest.' The vicar observed that during the following autumn and winter there was great mortality in most parts of England and that in Holland, in the south-east of the county, the situation had been made worse by the spread of distemper, seventeen clergymen in the neighbourhood falling victim.[44]

The ill health and death of livestock is also sometimes recorded in parish registers, and can again be linked both to generally unfavourable weather as well as sudden extreme events. For example, of the latter type, Reverend G.E. Mansell of the parish of Thorpe Malsor, Northamptonshire noted on the 18 June 1872 there was, 'The most violent thunder and rain ever known by the oldest inhabitant.' Three storms hit in quick succession between half past three o'clock in the afternoon and seven o'clock at night, and lightning struck three sheep and a heifer at nearby Broughton. He was also obviously concerned with the immediate local effects of the storms as, 'The Rectory was swamped from the gutter over the front staircase, and three persons kept at work for between two and three hours in sweeping the water out of the front hall.'[45]

Damage to the parish church and local infrastructure

On occasion, extreme weather directly damaged the church, churchyard trees, or buildings in the immediate vicinity. Storms are the dominant weather event in this respect, with spires and steeples, roofs and windows falling victim to lightning strikes, strong winds or hail. The register accounts provide information as to the costs of repair and the systems in place for funding them, as well as details of localized impacts. For instance the 'Annals of Alrewas' record that:

> This year Ano 1593 the xxi of Marche was an exceeding great Tempest of winde which continewed all the daye Longe and did great hurte in many places Blowing downe of Steeples, dwelling housses, Barnes, Trees inumerable in every place with this p[ar]ishe their weare vii Barnes overthrowen, in Lichfield the toppes of Steeples of Saincte Michaels and Saincte Mary, by the market place were Blowen doowne, the Steeple of the highe churche in Staff was then Blowen doune which hurte the churche and chauncell and houses aboute the same that be the imagination of the Townes men 300 Li will not repare and make the same.[46]

The following year, at Much Wenlock, Shropshire, it was similarly recorded that:

> Upon the 16 day of June 1594 after it had lightened and thundered all night at fowr of the clocke in the morning the barn next the sum'er hall in the Abbey was found to have been set on fire by a lightening which fire by God's help and redines and diligence of the people of the town was sone quenched.[47]

Registers also capture the local impacts of events with national significance, for example the storm of 1703.[48] At Methwold, Norfolk, a parish on the edge of the Fens and Brecklands, the storm blew down the church steeple, the rebuilding of which cost the parish £160.[49] At Donington, Shropshire, news of the great losses at sea in November 1703 prompted, 'a day of Humiliation and fasting, and Letters patent for the Poor Sufferers.'[50] Donington itself suffered much greater damage in storms of 1696, 1700 and 1701.[51]

Several decades later, in the register for Billockby, Norfolk, Rector Thomas Dod recorded that on Thursday 15 July 1762 'there happened a most violent storm of thunder, lightning, hail and rain, the violence of which resulted in the roof of Billockby parish church falling in, broking down the seats and causing great damaged to the pulpit and desk.' The parishioners, being unable to pay for the repairs, were ordered by the churchwardens to assemble in the chancel to hear divine service until the church was repaired. Dod requested the assistance of the Bishop of Norwich and the roof was covered with new reed and the chancel repaired, and the following year it was repaved at his own expense. Dod's entry was foremost to record who had paid for the repairs with information on the weather event being incidental. He clearly saw this record keeping as part of his official duty, his register entry being reflective of his opinion of, 'the great carelessness of the people in preserving any parish records.'[52] At Wem, Shropshire in 1674, the congregation, 'Collected for a great & dreadfull & sudden storme & lightning & thunder wch set on fire the steeple of the church of Benenden, co. Kent, & melted the bells there.'[53]

Extreme weather also proved destructive to local transport infrastructure, with bridges washed away by heavy flooding or roads blocked by deep snow. Obstructions to mobility could impact on parishioners' ability to earn a living, buy and sell goods at market or attend church services or school. In 1776, the Reverend James Windsor recorded that it began to snow overnight on 5–6 January at Uffculme. A strong wind from the northeast meant that snow began to drift, blocking the roads that ran through the parish and making them impassable for carriages. The description of the snow provides insight into the impact of this extreme weather on the everyday life of the parishioners. Gates were opened and stiles pulled up in order for paths to be kept open between the village and the outlying parts of the parish. Those who died during the snow 'were obliged to be conveyed to the churchyard across the fields and over such gates and stiles as were not opened or removed.'[54]

The 'Annals of Alrewas' is one of many registers that record the nationally notable severely cold winter of 1795. Snow began to fall on 22 December 1794 and continued intermittently for seven weeks until 9 February 1795. The curate at the time, John Edmonds, probably gleaning his statistical information from the press, noted that the temperature on 26 January 1795 was 30 Fahrenheit or freezing point, on other days at 23 or even lower. Consequently, the Rivers Trent and Tame were frozen over, the corn mills unable to grind, and wheat sold at the high price of nine shillings per strike.[55] The rapid thaw in February resulted in damage to several bridges including the Kings Bridge and the bridge next to the Swan Inn at Wychnor.[56]

Memorable events

Parish registers also contain memoranda of particularly catastrophic or memorable events; important in some instances as the main source for otherwise little documented events that might be missing from existing weather event chronologies; and for others in detailing localized impacts. Contemporaries' use of language to refer to extreme weather events in terms of being the greatest 'in the memory of man,' and 'since time immemorial' shares a clear parallel with the historiography surrounding custom and popular memory in early modern England, and informs us of the ways in which communities experienced their local environment and atmosphere. Entries also provide insight into how knowledge of weather was transmitted and written down.[57]

For instance, on 1 February 1715 it was recorded at Old Bolingbroke, Lincolnshire, that there was 'a remarkable storm of wind which according to common report blew down some thousands of houses in the Kingdom.'[58] Fifty-five miles to the north at Alkborough the wind 'blew down many thousand trees in Lincolnshire.' A comparable hurricane storm event apparently not having been recalled in the 'memory of any man living.'[59] At Rolleston, in neighbouring Nottinghamshire, it was noted that: – 'On wch day was such a violent tempest of wind as was never known in any man's memory, it struck down two pinnacles from the steeple and did great damage to the Church and a good deal more in town.'[60] The 1715 hurricane is also recorded in the parish registers for Wintringham, Yorkshire, where the vicar Ralph Hodgson wrote, 'This year there happened a greate Intemperance of winde … and did much damage in many places, and blowed down Part of many Churches, and many trees, and many apple trees, and many wind mills in many places.'[61] Other meteorological events also appear in multiple registers within our geographically biased sample. As well as the storm of 1703, the snow and subsequent drought of 1615 (Figure 2), the frost of 1683, and the floods of 1588, 1770 and 1795 stand out.[62] By bringing together accounts from different places we can begin to understand the character and impacts of past meteorological events as well as their geographical extent.

Later in the nineteenth century, newspaper cuttings or handbills can be found pasted into parish registers. Examples of these are provided by the detailed description of a storm event on 7 May 1800 within a letter from Vicar Samuel Hopkinson to the local newspaper, detailing the impacts at Morton, near Bourne, Lincolnshire, and the handbill of the 1811 tornado at Kirk Ireton, Derbyshire.[63]

Personal curiosity

Discussion so far has drawn attention to the largely isolated accounts of weather within parish registers. However, there are also examples of sustained periods of weather recording in multiple registers. These can illustrate not only time periods that were particularly challenging in terms of the occurrence of extreme weather, but also a personal interest in the weather by the recorder. The practice of weather recording was sometimes passed from one incumbent to the next.

The weather observations of William Smith, the parish clerk of Orby, a village in East Lindsey, Lincolnshire, cover the period December 1833–June 1835, and are mixed in with occasional mentions of politics and crime in the local area. He also notes some observations of changes in the natural world such as the timing of plant flowerings and of the harvest.

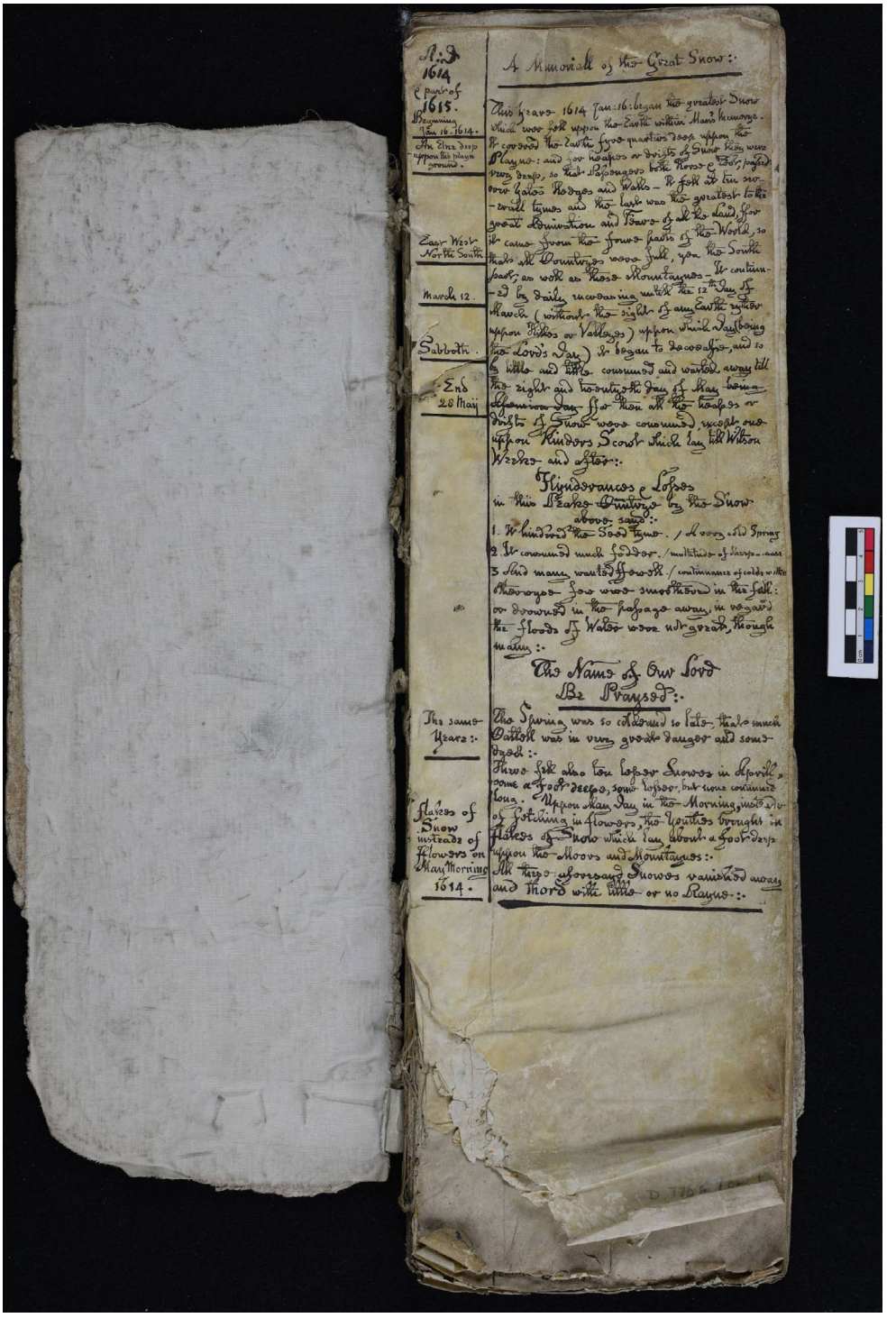

Figure 2. 'Memorial to the great snow,' Register of baptisms and marriages (1674–1724) for the parish of Winster, Derbyshire, D776/A/PI/A/1, Derbyshire Record Office (DRO). Reproduced with the permission of DRO and the Parish of Winster.

Living in a coastal parish, the impact of storm events was strong, and shipwrecks a relatively common sight. The year 1833 went out with a terrible gale of wind from the north-west which 'did a great deal of damage, both at sea and land.' Smith recalls that during this year there was the greatest loss of life at sea ever known in one season. Perhaps surprisingly for a parish in the traditionally wet Fens, water scarcity features in a number of his narratives, the 1834–1835 drought culminating in a prayer for rain, the still, dry conditions of the autumn of 1834 having stopped Lincolnshire's mills from working.[64]

Another example of an individual with a personal interest in the weather is the author(s) of the parish register of Clipston, Northamptonshire, who regularly entered notes on the weather throughout the 1790s, and less frequently up to 1821. The entries demonstrate interest in the weather as it affected the natural world in terms of the flowering and fruiting of garden produce and the growth of grass, the health of agricultural stock and people, and the prices of basic foodstuffs. The entries capture a particularly interesting period of successive extreme weather events, including the great frost of 1795, the severe winter of 1799 and the hardship of 1800–1801, both already mentioned, as well as the great heat of July 1808, and 1816 – the so-called 'year without a summer'[65]:

> May 28 1816 – The last winter has been long & severe & the spring protracted, the foliage on the trees not yet expanded, today may be called the 1st of summer … NB. The summer very unkind, the harvest late and the corn in general very much injured by rain which continued for a long time, trees in at a low ebb, great dis Kingdom, taxes of lives high … farmers breaking & landlords obliged to scale the rents …[66]

The entries in Reverend Lea's register for the parish church of St Peters, Droitwich, Worcestershire, demonstrate how closely the weather was intertwined with the local industries of salt mining and fruit growing in the latter half of the nineteenth century. They also provide important information concerning the aid provided to local poor during periods of hardship and distress. For example, the entry for January 1850 details that many watermen and salt makers were unemployed and that commissioners provided soup twice a week as a form of temporary relief. Cheap food was again called for in January of 1861, 'The land frozen, soup was sold at 1d per qt for 5 weeks, 2 days in the week. Meat dinners were cooked on Fridays at the Girls School.' A very dry summer in 1864 resulted in a failed turnip crop and elevated prices for hay. Local livestock and people were suffering, 'at Malvern the poor are obliged to buy their water.' The last quarter of the nineteenth century has been termed an 'agricultural crisis,' as competition from abroad increased. Reverend Lea's register entries suggest that the weather did not help matters:

> 1880 – This has been a most disastrous year for farmers – the season was very wet, the sheep died in flocks – the harvest was not half the average. The potatoes were badly diseased. The worst year for farmers ever known, the crops were poor and spoilt by the rain; many farms are thrown on the landlords hands, especially on the clay soils …[67]

Conclusions

Episodes of unusual and damaging weather in recent years have prompted many to consider whether extreme events are increasing in terms of their frequency and scale of impact.[68] Research has emphasized the need to place contemporary events within appropriate historical contexts, and also to pay attention to the local specificities of place.[69] At the same time, there is tremendous public interest in weather and weather history. The broader

research project which has given rise to this paper investigates not only the timing and impacts of weather extremes in the past, but also the processes by which certain events have become part of the cultural memory of a community whilst others are quickly forgotten. Weather narratives from parish registers are a unique source, capturing particularly interesting periods of extreme weather as well as single events. They 'contribute to our understanding of the impact which those conditions had on the local populace' and have a role as 'community records' of weather and weather-recording. They are of particular value to the early modern era, when there is less source material concerning the weather compared to later centuries. It is apparent that the eighteenth and early nineteenth centuries were the zenith of parish weather recording, but entries in some registers continue into the twentieth century, making them a temporally and geographically extensive source. In 1754, the Hardwick Act led to the introduction of printed marriage registers and from January 1813 the Rose Act provided standardized pre-printed registers for baptisms and burials leaving less room for weather and other notes within lists of baptisms, marriages and burials, but these were often transferred to front or end papers.[70]

Although most entries are specific, they may not be accurate. Combining parish register weather narratives is obviously helpful in this regard, as is triangulating them with other narrative sources. Both strategies are facilitated by digital tools of the type our project is developing; hence it has been argued that, 'digital technologies are changing the ways humanities scholars think.'[71] However, when parish registers themselves are digitized, the contents are often searchable only by name, date or place, a logical step following their primary usage by family historians and genealogists. This means that any additional information recorded in the margins, or inside the front or back covers is at best obscured or at worst missed entirely.

The previous work of archivists, parish register and record societies and more recently volunteers, in cataloguing and transcribing parish registers either on paper or more latterly online has been crucial to identifying references to past weather events. Indeed a substantial number of the references included in Table 1 are from printed registers and have been identified by previous researchers. It is fortunate that even with just a quick scan of a register, information on the weather tends to stand out to the reader who recognizes 'weather words' even when the handwriting is difficult to interpret. Weather, as for an assortment of other topics, certainly comes into the description of parish registers by Hobbs, 'as a chronicle of parish life and a repository of shared experience and communal knowledge for the benefit of both present and future generations.'[72] Recent research has highlighted the changing needs and challenges of the academic and research sectors and the limitations of existing catalogues for non-traditional research.[73] The experience of the project team has been positive, but archivists have at times expressed surprise at our interest in parish registers, and the value of incidental isolated entries for local and regional weather history. Cataloguing is an inevitably subjective exercise, and it remains impossible to know the full extent of weather information that remains hidden within the pages of parish registers. It is important that archivists are encouraged to re-think the cataloguing and publishing of parish registers for the purpose of weather history (and for an array of other linked topics), and that the wider academic community feed into the development of tools for connecting register narratives together. A systematic review would have real value to weather and climate historians. Given that parish register narratives are regularly used by a range of researchers interested in local, family and population history and the presence of a large number of volunteers within the archive sector, we hope that by highlighting their value, more will be done to capture and collate them.

Notes

1. Fleury and Henry, *Des registres paroissiaux*. Henry's influence in popularizing the study of the history of population and by implication parish registers as an historical source is detailed in Rosental, "The Novelty," 114.
2. Rosental, "The Novelty," 114.
3. Founded in 1964, CAMPOP has since pioneered research in family and demographic history. Work by E.A. Wrigley and R.S. Schofield particularly has involved the development and application of historical demographic techniques to English parish register data, see Wrigley and Schofield, *The Population History*.
4. Burn, *The History of Parish*; Burke, *Key to the Ancient*; Cox, *The Parish Registers* including a chapter on 'Storms, frosts and fires' and a section on deaths through cold and snow; Tate, *The Parish Chest*; and Waters, *Parish Registers in England* including a section on 'Miscellaneous contents'.
5. For example; Andrews, *Famous Frosts*; Lowe, *Natural Phenomena*; and Jeffery, *Was it Wet or Fine?*
6. Lowe, *Natural Phenomena*, 3–4.
7. Potter, *The Use of Historic Records*, 19.
8. Bayliss and Reed, *The Use of Historical Data*.
9. Williams and Archer, "The Use of Historical."
10. Zong and Tooley, "A Historical Record"; and Morgan, "Understanding Flooding."
11. Haslett and Bryant, "The AD 1607 Coastal Flood"; and Horsburgh and Horritt, "The Bristol Channel Floods."
12. Tufnell, "Environmental Observations," 141–3. Elsewhere, Hobbs provides a useful summary of all memoranda in the parish registers for the county of Wiltshire; Hobbs, *Gleanings from Wiltshire*.
13. Morgan, "Understanding Flooding," 45.
14. Brázdil et al., "Historical Hydrology," 743.
15. Macdonald, "Historical Weather Accounts."
16. Other examples include Hindle, "Dearth and the English" on the harvest crisis of 1647–50; Landers, "Mortality, Weather and Prices" on accelerated mortality in eighteenth-century London; Scott et al., "The Interacting Effects" on population dynamics in preindustrial society; and Witham and Oppenheimer, "Mortality in England", on the health impacts of the Laki Fissure eruption of 1783.
17. Morgan, "Understanding Flooding," 44.
18. In Burke, *Key to the Ancient*, 5.
19. On vestry minutes see Kington, "Searches for Historical Weather," and on church court records see Macdonald and McCallum, "The Evidence for." Examples from churchwardens accounts include those from the Parish of the Holy Cross and St Giles (Shrewsbury Abbey) which detail the costs of repairs to the abbey church after flooding in 1610 and 1615, P250/C/1/1, Shropshire Archives (SA). Examples of service registers with weather notes include those for North Huish, Devon (1896–1917) 3094A/PR/2/1, Devon Record Office (DeRO), and Babingly (1878–1910) PD 662/15, Norfolk Record Office (NRO). The Sunday school minute book for Trusthorpe, Lincolnshire, contains information on a snowstorm of 1853 and the severe winter of 1879, Meth/C/Trusthorpe, Lincolnshire Archives (LA).
20. Beckett, *Writing Local History*, 101–3, 148–153.
21. For example see Henstock, "The Nottinghamshire Parish Registers." Henstock documents a 328% increase in the number of searchers over a period of ten years, from 1922 in 1972–1973 to 6264 in 1982–1983, 70% of whom were genealogists, 80% of whom required access to parish registers.
22. An example of the latter includes that for Lincolnshire Archives, http://www.lincstothepast.com/. Staffordshire and Stoke on Trent Archive Service produced an online guide to 'Weather in Staffordshire's Archives' featuring parish registers in 2009 http://www.staffspasttrack.org.uk/exhibit/weather/default.htm. Genealogical subscription, commercially driven websites include http://www.ancestry.co.uk/ and http://www.findmypast.co.uk/.
23. A recent digitization effort in Northamptonshire involved the creation of 32,000 images covering 400 registers. Information board at Northamptonshire Record Office (NRO), 2015.

24. Tufnell, "Environmental Observations," 147.
25. Hobbs, "The Abstracts," 95.
26. *Annales Aldervasenses* – Register of baptisms, marriages and burials for All Saints, Alrewas, 1547–1747, D783/1/1/1, SRO. Other original volumes for Alrewas are D783/1/1/2 (baptisms and burials 1748–1795 and marriages 1748–1753) and D783/1/1/3 (baptisms and burials 1795–1812).
27. Shaw, *History and Antiquities of Staffordshire*, 137–142.
28. Quoted in Waters, *Parish Registers in England*, 69–70.
29. Hobbs, "The Abstracts," 96.
30. Cox, *The Parish Registers*, 205–6.
31. More information on the project can be found at www.nottingham.ac.uk/weatherextremes. The main output will be an online database of historical accounts of extreme weather in the UK that will be named TEMPEST. Our search for archival material has been concentrated in five case study areas; Central England, South-West England, East Anglia, Wales, and North-West Scotland.
32. Some clergymen chose to keep their weather notes in separate volumes, for example Reverend William Sampson, the Rector of Clayworth, Nottinghamshire (1672–1702), see Gill and Guilford, *The Rector's Book* and Ralph Josselin of Earls Colne in Essex (1640–1683), on whom see Macfarlane, *The Family Life*; and Macadam, "English Weather."
33. Calendar changes means that care should be taken with interpretation.
34. Church Briefs authorised recipients to make requests for donations to specified causes, (including those people who had suffered disastrous losses from extreme weather events) from a particular area in a given period of time, see Houston, "Church Briefs." Church collections in response to Briefs are sometimes noted in parish registers.
35. *Bilston Parish Register*, 49–50. The original is Register of baptisms for the parish of Bilston, 1694–1715 (contained within a volume of chapel wardens' accounts, 1669–1703), D667/3/1, SRO.
36. Register of baptisms for the parish of Elmore, 1769–1812, P136/IN/1/5, Gloucestershire Archives (GA).
37. Register of baptisms and burials for the parish of Uffculme, 1742–1812, 1920A/PR/1/6, DeRO.
38. On the connections between grain yields and prices and mortality crises see Hoskins, "Harvest Fluctuations"; and Brunt, "Weather Shocks."
39. *Alstonfield Parish Register*, 176. The original is Register of baptisms, marriages and burials for the parish of Alstonfield, 1538–1675, D922/1, SRO.
40. Register of burials, marriages and baptisms for the parish of Old Bolingbroke, 1709–1732, OLD BOLINGBROKE PAR/1/2, LA.
41. Atmospheric phenomena and weather were all part of the same study of the skies at this time and as such are of interest to historians of meteorology, weather and climate, see Jankovic, *Reading the Skies*.
42. *Alstonfield Parish Register*, 215, 1675–1715, D922/2, SRO.
43. Register of baptisms 1705–1791, marriages 1705–1753, and burials 1705–1785 for the parish of Bugbrooke, BUGBROOKE 53P/3, NRO.
44. Register of burials, marriages and baptisms for the parish of Old Bolingbroke, 1709–1732, OLD BOLINGBROKE PAR/1/2, LA.
45. Register of baptisms for the parish of Thorpe Malsor, 1813–1984, THORPE MALSOR 3229/4, NRO.
46. *Alrewas Parish Register*, Part 1, 35.
47. Hartshorne, "Extracts from the Register," 12. The original register has been lost.
48. Defoe, *The Storm*.
49. Register of baptisms and marriages 1683–1696 and 1703–1713, and burials 1683–1696 and 1704–1711 for the parish of Methwold, PD 313/82, NRO.
50. *Donington Parish Registers*, 83. The original is General register 1689–1796 (marriages to 1754 only) for the parish of Donington, P94/A/1/2, SA (Shropshire Archives). National prayers and days of worship have recently been indexed and present another ecclesiastical source on historic weather disaster, see Mears et al., *National Prayers*.
51. For example, 'Feb. 7th, 1696. Wee had then a most Violent Storm or rather a Sort of Hurricane, wch. blew West and N. West; it blew down 2 Barns at the parsonage of Donington and did great

spoyls in most Towns of England, the Cathedral of St. Chad at Lichfield received great Damage, neare 1000£ loss; 3 young men were killed at Pepperhill by the Fall of Chymneys, and many lost their Lives in other places.' *Donington Parish Registers*, 83.

52. Register of baptisms 1561–1812, marriages 1561–1748, and burials 1561–1812 for the parish of Billockby, PD 82/10, NRO.
53. Results of an online search suggest that the event is also recorded in a number of other parish registers, among them Smarden, Great Waltham, Chislet and Charing. Narratives detailing urban fires are present in a number of registers. For a discussion of collections for those affected by urban fires see Morgan, "The representation."
54. Register of baptisms and burials for the parish of Uffculme, 1742–1812, 1920A/PR/1/6, DeRO.
55. A measure of corn, varying from half a bushel to four bushels. Wright, *The English Dialect*, 816.
56. *Alrewas Parish Registers. Part 2*, 165.
57. Wood, *The Memory of the People*; Whyte, *Inhabiting the Landscape*; and Fox, "Custom, Memory."
58. Register of burials, marriages and baptisms for the parish of Old Bolingbroke, 1709–1732, OLD BOLINGBROKE PAR/1/2, LA.
59. Register of baptisms 1710–1785, marriages 1710–1764, and burials 1710–1785 for the parish of Alkborough, ALKBOROUGH PAR/1/3, LA.
60. Longhurst and Freckingham, *A Short History*, 28; register of baptisms, marriages and burials 1667–1728 for the parish of Rolleston, Rolleston PR, Nottinghamshire Archives (NA). The churchwardens' accounts give more detail of the damage incurred. The original paper parish register also records damage to the steeple in 1592, original paper register for the parish of Rolleston 1588–1614, NA.
61. Cholmley, *The Parish Register*, 113.
62. The quotation in our title refers to May Day 1615 and comes from identical accounts of this long lying deep snow within both the Winster register and Youlgreave churchwardens and constables accounts, Derbyshire, Winster register of baptisms and marriages, 1674–1724, D776/A/PI/A/1, and Youlgreave churchwardens and constables accounts, D3644/42/1, both DRO. Each of these examples could be described as 'national' weather events, though each had geographically variable impacts.
63. Register of baptisms 1783–1812 and burials 1783–1812 for the parish of Morton by Mourne, MORTON BY MOURNE PAR/1/6, LA; Register of baptisms for Kirk Ireton 1813–1880, D2069/A/PI/2/1, DRO.
64. Register of baptisms, marriages and burials 1770–1812, baptisms 1832–1835, and burials 1827–1833 for the parish of Orby, ORBY PAR/1/2, LA.
65. Oppenheimer, "Climatic, Environmental."
66. Register of baptisms 1730–1812, marriages 1730–1754, and burials 1730–1812 for the parish of Clipston, CLIPSTON 70P/3, NRO.
67. Register of baptisms and burials 1793–1812 for the parish of Droitwich St Peter, 850DROITWICHSPA/1/a/iii, Worcestershire Record Office. In 1872 Lea published a book on small farms detailing how to make them pay by fruit growing, see Thirsk, *Alternative Agriculture*, 207.
68. Coumou and Rahmstorf, "A Decade of Weather Extremes."
69. Hulme, *Why We Disagree*; Hulme, "Climate and its changes"; and Livingstone, "Reflections."
70. For more on the Act for the better regulating and preserving Parish and other Registers of Births, Baptisms, Marriages, and Burials, in England, see Basten, "From Rose's Bill."
71. Hayles, "How we Think." Digital tools also include mapping capabilities, shedding light on the geographical and temporal distribution of weather narratives.
72. Hobbs, "The Abstracts," 109.
73. Bastian et al., *Sustaining Time*.

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