



Atlantic Disaster: Boston Responds to the Cape Ann Earthquake of 1755

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BEFORE the sun rose the morning of November 18, 1755, John Adams woke to the shaking of the earth. “The house seemed to rock and reel and crack as if it would fall in ruins about us,” wrote Adams in his journal from outside of Boston.¹ Within the city, an unnamed observer stayed in bed during the earthquake and tried to remain calm so he could remember every pulse, jerk, and vibration as chimneys and even the famed weathervane of Faneuil Hall crashed down around him. “The *Brute Creatures lowed*,” he reported, “the *Birds flutter’d in the Air*, with a *Surprize*; and all the *Animal Creation* were fill’d with *Terror*: and never was such a *Scene of Distress in New England* before.”² In a sermon delivered the Sunday after the quake, the minister Mather Byles preached, “It was a terrible Night, the most so, perhaps, that ever New-England saw. When we remember it, we are afraid, & Trembling taketh hold of our

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¹John Adams Diary 1, November 18, 1755 [electronic edition], *Adams Family Papers: An Electronic Archive*, Massachusetts Historical Society, <http://www.masshist.org/digitaladams> (accessed October 27, 2016).

²Anonymous letter quoted in Thomas Prince, *An Improvement of the Doctrine of Earthquakes, Being the Works of God, and Tokens of His Just Displeasure . . .* (Boston: Fowle and Fowle, 1755), 16. Italics in the original. Unless otherwise noted, italics in this paper indicate emphases in the original texts.

Flesh. And it was Sin that provoked God to appear against us in so awful a Manner; and the Land to tremble and sorrow.”³

This sorrow of the land, now known as the Cape Ann earthquake (due to its hypothesized epicenter off the shore of Cape Ann, Massachusetts), shook the eastern edge of the continent and its accompanying waters from Nova Scotia to South Carolina. Current estimates suggest the earthquake had a moment magnitude of approximately 5.9, though eighteenth-century reports suggest no one was killed or seriously injured.⁴ In 1755, the authors of sermons, scientific tracts, and newspaper accounts immediately sought to evaluate this rupture in the world around them. The ultimate authority for the earthquake’s interpretation rested not in any one of these discourses, but in their combined effect. Various individuals came to understand the event through the lenses of religion, natural philosophy, and public forums, revealing the blending of these eighteenth-century social spaces.⁵ Sermons became environmental texts, scientific treatises played God, and newspaper accounts held conflicting views in tension on a single page. In falsely separating these realms of knowledge and experience, we risk imposing our own categories upon the past, and in so doing, warping the character of early Americans’ relationship to the environment, natural philosophy, and religion.

Yet, as these genres indicate, the earthquake did not represent a unitary event. Rather, it caused distinct types of upheaval for different people, whether it was a cataclysm of the soul, the underlying land and ocean, or the built social environment. The collective experience of the earthquake remained a fractured one, not only due to its discontinuous effects across the region and the diverse ways of interpreting it, but also because an event of this magnitude and scope continuously put forth

³Mather Byles, *Divine Power and Anger Displayed in Earthquakes ...* (Boston: Kneeland, 1755), 19.

⁴John E. Ebel, “The Cape Ann, Massachusetts Earthquake of 1755: A 250th Anniversary Perspective,” *Seismological Research Letters* 77 (January 2006): 74 (hereafter referred to as *Seismological Research*).

⁵For readability, I often use the word “science” in place of “natural philosophy” throughout this essay.

new information, prompting those in the eighteenth century to partake in their own revisionist histories. Even the printed documents are cracked and split in various ways, suggesting the vagaries of recording earthquake facts: footnotes span entire pages to provide additional details, interrupting the flow of reading in the process, and lengthy narrative appendices (more akin to what we now call addenda) dwarf the original text and sometimes provide the most important information of all.

Social expectations of ministers, scientists, and newspaper publishers required their immediate public commentary on the nature of the earthquake; however, this rush for instant reflection conflicted with the time needed to compile accurate data about the quake's effects. As a result, the earthquake remained an event under perpetual revision and contestation in printed sources, which augmented the uneven manner in which people experienced and remembered it.⁶ As ministers and natural philosophers rushed to amend and expand their statements on the earthquake with appendices to their published works, however, news of a far more devastating earthquake that struck Lisbon on November 1, 1755, reached the American colonies. This earthquake, which famously and deeply unsettled Enlightenment thinkers, provided a geological appendix to the Cape Ann earthquake, as I explore at the conclusion of this essay. Reports from Lisbon drove Americans to revise their picture of the New England event once more and broaden their horizon of environmental upheaval to one that extended into and across the Atlantic Ocean.⁷ Like seismic waves, knowledge of each cataclysm made its way to and through New England not

⁶To make this argument about public commentary and public revision, I rely primarily on printed primary sources from Boston because it was the prime center of publishing and science among areas significantly affected by the earthquake, as well as home to a number of congregations. Boston's built environment also offered a metric for evaluating damage unavailable in other spaces. As a consequence, the analysis centers almost exclusively on the discussion of the earthquake among English-speaking colonists.

⁷On changing conceptions of the Atlantic Ocean as a unit throughout the eighteenth century, see Joyce E. Chaplin, "Knowing the Ocean: Benjamin Franklin and the Circulation of Atlantic Knowledge," in *Science and Empire in the Atlantic World*, ed. James Delbourgo and Nicholas Dew (New York and London: Routledge, 2008), 78.

in a continuous stream, but in ripples and pulses with the power both to rend and mend the social fabric.

Scholarly accounts of earthquakes in eighteenth-century America have largely focused on the scientific and religious dimensions of these catastrophes and the intellectual debates that followed them.⁸ However, the underlying landscape, the movements of the ocean, and the region's animal inhabitants shaped these cerebral discussions, though the natural and material ramifications of the Cape Ann earthquake often elude accounts of its history. To colonial Americans, the quake was not merely a chance for philosophical reflection, but also remarkably palpable: something measured through encounters with fields and creatures in addition to books and lectures, and understood through the human body—what historian Conevery Bolton Valencius calls “an instrument of seismic disruption”—as well as the mind.⁹ Science, broadly conceived, permeated everyday life in the earthquake's aftermath.¹⁰ Environmental history as a field is particularly attuned to tracing nature's material effects on historical people and places, as well as the physical movement of stuff—from animals to rocks to atoms—through the world.¹¹ Yet, as J. R. McNeill has argued, the field retains a “terrestrial bias,” focusing on landscapes far more than seascapes.¹² Even the term “earthquake” seems predisposed to

⁸Charles Edwin Clark, “Science, Reason, and an Angry God: The Literature of an Earthquake,” *The New England Quarterly* 38 (1965): 340–62 (hereafter referred to as *NEQ*) and Maxine Van De Wetering, “Moralizing in Puritan Natural Science: Mysteriousness in Earthquake Sermons,” *Journal of the History of Ideas* 43 (1982): 417–38.

⁹Conevery Bolton Valencius, *The Lost History of the New Madrid Earthquakes* (Chicago: The University of Chicago Press, 2013), 150 (hereafter referred to as *New Madrid Earthquakes*); see also Deborah R. Coen, *The Earthquake Observers: Disaster Science from Lisbon to Richter* (Chicago: The University of Chicago Press, 2013) (hereafter referred to as *Earthquake Observers*).

¹⁰On the prevalence of natural historical knowledge in daily life, particularly as it related to plants, animals, and minerals, see Andrew J. Lewis, *A Democracy of Facts: Natural History in the Early Republic* (Philadelphia: University of Pennsylvania Press, 2011).

¹¹See also Ellen Stroud, “Does Nature Always Matter? Following Dirt Through History,” *History and Theory* 42 (2003): 75–81.

¹²J. R. McNeill, “Observations on the Nature and Culture of Environmental History,” *Hist. and Theory* 42 (2003): 42. For recent historical accounts that foreground

emphasize the quaking of dry land. Much of the historical literature on earthquakes reflects this prejudice, even though offshore earthquakes (and the tsunamis that often accompany them) abound throughout history.

The role of the ocean in the Cape Ann earthquake mattered to people in the eighteenth century, and it also provides a link to bridge disparate historiographic trends. In response to transatlantic and global turns in early American history, historian Karen Halttunen has rightly called for “grounded histories” that interweave human and natural histories by focusing on local places and lands—reference points that often mattered more to colonists than grander national, imperial, or transatlantic structures.¹³ My story is grounded in the ground and the sea, as Americans came to understand this eruption in their physical and metaphysical world through corporeal encounters, walking across the land, running sediment through their fingers, observing fish in the water, and cataloguing slight differences in environmental change across regions. Yet this essay also reveals that a single material event such as the Cape Ann earthquake could be rooted locally in Halttunen’s sense while also, as colonists’ deferred reaction to the Lisbon earthquake shows, enveloped in a larger transatlantic current that reoriented and reinvigorated the view of the local.¹⁴ Grounded and grander histories are, then, not mutually exclusive modes of analysis. In

water in history, see Helen M. Rozwadowski, *Fathoming the Ocean: The Discovery and Exploration of the Deep Sea* (Cambridge: The Belknap Press of Harvard University Press, 2008), W. Jeffrey Bolster, *The Mortal Sea: Fishing the Atlantic in the Age of Sail* (Cambridge: The Belknap Press of Harvard University Press, 2012), and Michael S. Reidy, *Tides of History: Ocean Science and Her Majesty’s Navy* (Chicago: The University of Chicago Press, 2008).

¹³Karen Halttunen, “Grounded Histories: Land and Landscape in Early America,” *The William and Mary Quarterly*, 3rd ser., 68 (October 2011): 513–32 (hereafter referred to as *WMQ*). See also Christine DeLucia, “The Memory Frontier: Uncommon Pursuits of Past and Place in the Northeast after King Philip’s War,” *Journal of American History* 98 (2012): 975–97. On the expanding spatial scope of histories of early America, see Eric Hinderaker and Rebecca Horn, “Territorial Crossings: Histories and Historiographies of the Early Americas,” *WMQ* 67 (July 2010): 395–432.

¹⁴On local histories within Atlantic contexts, see David Armitage, “Three Concepts of Atlantic History,” in *The British Atlantic World, 1500–1800*, ed. David Armitage and Michael J. Braddick, 2nd edition (London: Palgrave Macmillan, 2009), 13–32.

fact, the latter can reinforce the former. It is through shuttling between the small and the large, the local and the transatlantic, the fallen bricks and the lifeless whales that a fuller picture of the Cape Ann earthquake begins to take shape, and therefore a fuller picture of the people and society that experienced it.¹⁵

The Earthquake and the Pulpit

New England has often been described as a landscape of uniformity and slow, gradual change.¹⁶ Yet earthquakes have caused sudden alterations to its topography for centuries, if not millennia. The average Massachusetts resident today would likely experience a major New England earthquake with surprise, but eighteenth-century Americans did not consider the 1755 quake to be such an anomaly. Reports of earthquakes punctuate personal diaries and almanac notations from New England residents throughout the eighteenth century.¹⁷ Many of those who felt the 1755 quake remembered a significant earthquake from twenty-eight years earlier, known as “the great earthquake” until the 1755 temblor assumed that title.¹⁸ As Joseph Dow related in a history of Hampton, New Hampshire, “The older people . . . had not forgotten the earthquake of 1727, and now [in 1755], as on that occasion, they recognized

¹⁵Coen also notes the need to move between the natural and social, local and global, and subjective and objective; *Earthquake Observers*, 6.

¹⁶Mike Davis describes the geology of New England as “generally quiescent,” when compared to earthquake-prone California. *Ecology of Fear: Los Angeles and the Imagination of Disaster* (New York: Vintage, 1998), 15. On the theory of uniformitarianism, see Stephen Jay Gould, *Time’s Arrow, Time’s Cycle: Myth and Metaphor in the Discovery of Geological Time* (Cambridge, MA: Harvard University Press, 1987).

¹⁷One group of seismologists has suggested that the Cape Ann earthquake and other earthquakes in New England may have been delayed aftershocks of a massive quake that occurred in the region as long as thousands of years ago. John E. Ebel, Klaus-Peter Bonjer, and Mihnea C. Oncescu, “Paleoseismicity: Seismicity Evidence for Past Large Earthquakes,” *Seismological Research* 71 (2000): 289. John Winthrop’s annotated almanacs in the Harvard University Archives provide many examples of intermittent eighteenth-century earthquake reports; see *Almanacs of John Winthrop, 1739–1779*, HUM 9, Boxes 4–7, Harvard University Archives, Cambridge, MA. On the 1727 earthquake, see Kenneth P. Minkema, “The Lynn End ‘Earthquake’ Relations of 1727,” *NEQ* 69 (1996): 473–99.

¹⁸James Cogswell, *The Danger of Disregarding the Works of God . . .* (New Haven: James Parker and Company, 1755), 15.

the hand of God in the occurrence.”¹⁹ The 1755 event, having wrested most people from their beds early that Tuesday morning, was uniquely disruptive given its magnitude and timing. The sheer number of newspaper accounts, lectures, sermons, pamphlets, letters, poems, and maritime reports that surfaced in response to the earthquake indicates a continuing demand for information about the event and suggests widespread effects on both the personal and social level.

Given the earthquake’s hold on the public, Protestant ministers throughout the region delivered a flurry of sermons on the Sunday following the event in hopes of helping their congregations make sense of it. Many of these sermons were later printed, often with revisions or additions. Divining the cause of this event took precedence in almost all of these sermons. Ministers nearly unanimously agreed that the earthquake consisted of interplay between what they called “first” and “second” causes, pointing to God as the originator and first cause of the quake.²⁰ God, they held, remained the ultimate engine behind all natural disasters, which He used as tools to express divine power or wrath. While God might cause the earth to quake miraculously—out of thin air, as it were—by invoking His “almighty power,” He more frequently “concurred” with so-called second causes, or natural mechanisms within the earth, to make the land convulse. These second causes were governed by natural law, itself a product of the “all-wise God,” and thus still under His governance.²¹

While nearly all ministers saw the hand of God in the event, some were more willing than others to speculate on the nature of the physical mechanisms by which they believed God

¹⁹Joseph Dow and Lucy Ellen Dow, *History of the Town of Hampton, New Hampshire: From Its Settlement in 1638, to the Autumn of 1892* (Salem: Salem Press Publishing and Printing Co., 1893), 1: 207.

²⁰Kathleen S. Murphy has noted the persistence of providential interpretations of natural phenomena alongside a Newtonian view of physical mechanisms well into the eighteenth century in the Chesapeake colonies. “Prodigies and Portents: Providentialism in the Eighteenth-Century Chesapeake,” *Maryland Historical Magazine* 97 (2002): 397–421.

²¹Charles Chauncy, *Earthquakes a Token of the Righteous Anger of God . . .* (Boston: Edes and Gill, 1755), 6, 15.

expressed his wrath against sin. In a sermon delivered at the Old Brick Meeting House in Boston, Charles Chauncy doubted if the natural triggers of earthquakes could ever be known, stating of second causes:

There are stores of them, no doubt, in the bowels of the earth: But knowest thou, O man, what they are, or how they operate to the production of these amazing events? Much has been said, upon the origin of earthquakes, by men of learning; but, after all that yet has been said, and by the greatest Philosophers too, perhaps, this work of God may justly be ranked among those marvellous ones, which cannot be comprehended.²²

Chauncy thus questioned humanity's attempts to understand the material mechanisms of earthquakes, positing that God's wonder escaped human searching as he preached: "That amazing power, which causes the earth, in a circle of hundreds of miles, to quiver and tremble, or undulate in waves like those of the sea, who can understand!"²³ Chauncy's insistence on the inability of people to comprehend the earthquake in full aligns well with Martin Voss's definition of disaster as "that which cannot be comprehended *exactly*."²⁴

John Burt, pastor of a church in Bristol, Rhode Island, also found the second causes of the earthquake beyond his purview, and he feared their inclusion in sermons could do harm by deflecting attention from the first cause of the quake, thereby undermining the moral lessons of this disaster. He noted in one sermon: "An Inquiry into the natural Causes of Earthquakes, would be inconsistent with my design'd Brevity, and might divert your Thoughts from the great first Cause of All; I shall therefore only mention them as Works of God, and the Means he uses to accomplish his Pleasure."²⁵ As they would do for other cataclysms such as fire, volcanic activity, and disease, most sermons in this period identified sin as the prod to God's

²²Chauncy, *Earthquakes a Token of the Righteous Anger of God*, 7.

²³Chauncy, *Earthquakes a Token of the Righteous Anger of God*, 8.

²⁴Quoted in Coen, *Earthquake Observers*, 3.

²⁵John Burt, *Earthquakes, the Effects of God's Wrath . . .* (Newport: J. Franklin, 1755), 6.

wrath, citing scripture to support various interpretations as to which sin was most prevalent in New England and thus most in need of correction.

Other ministers, however, tentatively joined with the natural philosophers and speculated on the workings of second causes of earthquakes. Mather Byles, for instance, offered a detailed account of how the earthquake may have functioned by drawing on natural philosophy, positing that the quake resulted from gases rumbling within the earth: “No Doubt natural Causes may be assigned for this *Phenomenon*. An imprisoned Vapour too closely pent, or too strongly compressed in the Caverns beneath, will, thro’ a natural Elasticity, abhor Confinement, dilate and expand, swell and heave up the Surface of the Earth, producing a Tremor and Commotion.” Byles went on to connect these postulations to his religious mission by suggesting that in addition to vapors within the earth, there may be “Sulphureous and Combustible Materials” buried deep within the planet that would ignite on the day of judgment to consume the world entire. “[O]ur globe . . . has a natural Tendency to a final Conflagration,” he said, “And that same Disposition of Things which fits it for this Catastrophe, renders it also liable to Earthquakes.”²⁶ Despite his identification of these natural roots, Byles stressed that earthquakes were not “casual” events, but wrought according to God’s intention.

Though ministers disagreed on what could be said of the earthquake’s causes, they significantly insisted on a shared subjective experience of the event. These sermons addressed their audiences on the presumption that all shared a horrified response to the earthquake, even though this sentiment would be contradicted by other firsthand reports. Jonathan Mayhew, Pastor of the West Church in Boston, suggested that “even the most abandoned men, who are witnesses of these his mighty works, are generally struck with a solemn awe, and have their thoughts turned toward the great Author . . . and shudder under the apprehensions of his righteous

²⁶Byles, *Divine Power and Anger Displayed in Earthquakes*, 4.

displeasure.”²⁷ Chauncy went a step further, suggesting the earthquake terrorized not only all humans, but all beings, writing: “Even the dumb creatures are affected with a kind of horror, and very significantly express it by their dolorous roars, tho’ not modulated into articulate sounds.”²⁸ Ministers moved beyond emotional commonality to argue that earthquakes materially affected all ranks of society, as Chauncy wrote that “the destruction it threatens is sudden, and dreadful, and equally extends to all the various ranks, conditions, and ages of men; whether high or low, rich or poor, bond or free. . . . It is therefore an occurrence that is singularly fitted to strike the mind with surprize.”²⁹

Many ministers tried to stop fear from spiraling out of control after the 1755 earthquake and devolving into the religious enthusiasm characteristic of the Great Awakening of the 1730s and 1740s by stressing the need for “rational awe” instead of irrational terror.³⁰ Carefully managed, fear proved to be a useful tool for educating ministers’ audiences. As Mayhew suggested, “Such seasons and opportunities as the present, when the ears and hearts of men may be supposed more open to discipline, ought not, therefore, to be neglected, but carefully improved by those, whose particular business is to ‘call sinners to repentance,’ and to preach righteousness to the world.”³¹ Sermons thus registered the event as a didactic disaster for the soul.

Even as these sermons primarily explored *why* this event happened and its consequences for sinners, they also contained glimpses of *how* the event shaped the land and thus served as

²⁷Jonathan Mayhew, *The Expected Dissolution of All Things, A Motive to Universal Holiness* . . . (Boston: Edes and Gill, 1755), 6.

²⁸Chauncy, *Earthquakes a Token of the Righteous Anger of God*, 6. Animals have long been viewed as particularly attentive to the effects of earthquakes. Valencius has noted that although many nonscientists readily recognize animals’ behavioral changes in response to (or in anticipation of) earthquakes, scientists look at such reports with skepticism (mainstream seismology in China being one exception). *New Madrid Earthquakes*, 315. See also Helmut Tributsch, *When the Snakes Awake: Animals and Earthquake Prediction*, trans. Paul Langner (Cambridge: The MIT Press, 1983).

²⁹Chauncy, *Earthquakes a Token of the Righteous Anger of God*, 5.

³⁰Sara Errington, “Wonders and the Creation of Evangelical Culture in New England, 1720–1820” (Ph.D. diss., Brown University, 2000), 154.

³¹Mayhew, *The Expected Dissolution of All Things*, 6.

both religious and environmental texts. Descriptions of environmental transformation typically surfaced in appendices to the printed versions of sermons. Chauncy's sermon was exemplary in this regard because the printed version contained an additional appendix dated December 3, 1755 and titled "An Appendix; Giving a summary Account of the late EARTHQUAKE." By gathering reports he had received or read since the sermon's initial delivery, Chauncy compiled some of the most compelling descriptions of the earthquake's effect on the landscape in all the literature from the period. The printed version of his sermon thus embodied the passage of time, showing both the need for immediate religious commentary on the shaking world as well as the value of hindsight in providing a more accurate summary of the event.³²

Chauncy began his appendix by recounting contradictory interpretations of the earthquake's timing, variations in its intensity, and disagreements over whether a sound preceded the quake. While Chauncy's initial sermon stressed the common experience of fear, even among animals, his own appendix emphasized markedly different interpretations of the event by people in various places. Chauncy went on to describe changes in the land, noting that "old springs were shut up, and new ones opened," and that in Scituate, Massachusetts, several chasms in the ground "iffused large quantities of water, and (at the lowest computation) 10 cart loads of a strange sort of earth, as fine as flower [*sic*], and of a whiteish complexion"—presumably describing sand blows, in which sediment shoots from the ground during some earthquakes like a volcano.³³

Finally, Chauncy detailed the earthquake's effects on the ocean. Eighteenth-century accounts revealed the agitation at sea.³⁴ Chauncy relayed reports from sailors who felt the sensation of running aground, stating their legs felt like jelly even

³²Chauncy, *Earthquakes a Token of the Righteous Anger of God*.

³³Chauncy, *Earthquakes a Token of the Righteous Anger of God*, 31–32.

³⁴Seismologists today locate the Cape Ann earthquake's epicenter on the ocean floor approximately forty kilometers east-northeast from the coast of Cape Ann. Ebel, "The Cape Ann Earthquake of 1755," 74–86.

though the winds were calm, and they found the ship still in somewhat deep water. The cause of this experience suggested itself once the sun began to rise, and the seamen reportedly “saw 3 large whales on the top of the water, and by their continuing perfectly still, they was ready to think, they were dead; tho’ they could not reduce this to a certainty, having no bullets to fire at them.” In addition to these whales, the mariners also observed near the water’s surface “great numbers of other fishes, both great and small; frightened, as it was tho’t, from the bottom.”³⁵ Whereas in his sermon, Chauncy cited animals’ groans as evidence of widespread terror, the men at sea interpreted the bodies of marine animals as signals of the commotion on the ocean’s floor, and thus a form of evidence as to the nature of the event. Chauncy’s appendix demonstrated that the earthquake was not only an event of the soul, prompting colonists to repent: it also had far-reaching effects on the land and waters throughout the region and the animals that inhabited them. It may even have brought three giants of the sea to their final, pelagic resting place. Thus, ministers could not restrict their focus solely to the earthquake’s spiritual nature, for its pervasive consequences for habitats and animals—which came into focus with the passing of time—showed the event far exceeded a merely human frame of reference.

The Earthquake and the Philosopher

In addition to being “the greatest Mathematician and Philosopher in this Country,” in Chauncy’s words, John Winthrop has been called the father of seismology, though *a* father of seismology would be a more accurate designation since several thinkers turned their sights toward seismicity around this time.³⁶ Winthrop was the second Hollis Professor of

³⁵Chauncy, *Earthquakes a Token of the Righteous Anger of God*, 32. Other accounts reported dead fish in the ocean, and seismologist John Ebel has noted this as “evidence for an offshore epicenter.” Ebel, “The Cape Ann Earthquake of 1755,” 76.

³⁶Quoted in Winfred E. A. Bernhard, “Winthrop, John,” *American National Biography Online* (Feb. 2000), <http://www.anb.org/articles/13/13-01840.html> (accessed October 27, 2016). Coen identifies Immanuel Kant as the founder of seismology based

Mathematics and Natural Philosophy at Harvard from 1738 to 1779 and published perhaps the most extensive scientific reflection on the earthquake, a tract based on a lecture he delivered at the chapel of the College on Wednesday, November 26, 1755—only three days after the deluge of sermons delivered on the Sunday following the event.³⁷ Just as ministers were expected to immediately offer guidance on interpreting the quake spiritually, Winthrop felt a similar obligation as a natural philosopher, opening his lecture by noting: “You may justly expect, that the great EARTHQUAKE, which so lately spread terror, and threatened desolation throughout *New-England*, should take me off from my stated course of lectures, to inquire into the probable causes of so formidable a phænomenon.”³⁸ The printed version of Winthrop’s talk, which included a transcript of the original lecture supplemented with footnotes that incorporated additional information as well as an appendix of its own, merits extended commentary and profits from a comparison with sermons.

Subjective experiences and firsthand, “felt reports” of the earthquake from across the region played a central evidentiary role in Winthrop’s lecture as he assessed how the earthquake proceeded. While emotion figured prominently in sermons as a means of underlining shared fear, Winthrop approached subjective experience as a scientific tool. In some cases, Winthrop valued personal experiences over physical evidence. For instance, in assessing the precise motions of the earthquake, Winthrop believed, relying upon the testimonies of people, that it proceeded with an “undulatory” motion similar to the waves of the ocean, even though evidence such as the “dashing of liquors over the sides of open vessels” and the “throwing of bricks off the tops of chimnies [*sic*] to some distance” indicated purely horizontal movement.³⁹ Thus, Winthrop thought

on his collection of eyewitness reports and production of “the first work of modern seismology” in the wake of the Lisbon earthquake. *Earthquake Observers*, 7–8.

³⁷On Winthrop as Hollis Professor see Raymond Phineas Stearns, *Science in the British Colonies of America* (Urbana: University of Illinois Press, 1970), 643.

³⁸John Winthrop, *A Lecture on Earthquakes . . .* (Boston: Edes and Gill, 1755), 5.

³⁹Winthrop, *A Lecture on Earthquakes*, 9–10.

the physical trappings of civilization could distort the transformation of nature beneath the built environment.

Similarly, in trying to understand the directionality of the earthquake, Winthrop valued the testimony of people who were walking across Cambridge Common at the time. Winthrop's investigations reveal a sensibility that not all subjective knowledge was equally admissible as scientific evidence, and often, the experiences of average people going about their daily lives could be the most valuable. Winthrop reasoned that people on the Common, being out in the open air, could judge the direction of the thunderous noise that accompanied this earthquake more accurately than those, like himself, who were indoors, where sounds and sensations could be dulled or obscured by the rumblings of objects or structures. Winthrop wrote: "I was informed a few minutes after the shock, by a person who was upon the *common* in this town at the time, that the noise began about the N.W., and came on from thence, and pass'd away toward the S.E.; and other accounts, which I have since met with, agree with this." The physical environment could deceive: individuals "who were in such clear, open places could make the best judgment in this matter; for such as were within doors, or surrounded with buildings, might easily be misled by the various reflections of the sound." Winthrop felt "induced to give the greater credit to this information" as he sought to understand how the earth's motions affected the underlying environment, rather than civilization as it pertained to humans.⁴⁰

While Winthrop relied heavily on firsthand accounts to make his case, he often used other means to verify these testimonies. In addition to assessing the directionality of the quake, he also dwelled on the duration of the event. The timing of the earthquake caught Winthrop's attention because this event appeared to last longer than even the most devastating earthquakes. Winthrop felt "assured" that it proceeded for at least

⁴⁰Winthrop, *A Lecture on Earthquakes*, 14. Most accounts from the period concluded that the earthquake came from the northwest, though scientists now suggest its origin was beneath the ocean near Cape Ann.

four minutes based on “the observations of some Gentlemen, who were up,” as well as a fortuitous means of measuring time available to Winthrop in his own home, which corroborated these reports.⁴¹ The day before the earthquake, Winthrop had adjusted his watch according to a meridian line and “found that the watch had kept time exactly.” After waking to the earthquake and staying in bed for some time, Winthrop looked at his recently adjusted watch to see it was 4:15 am. He rose to view a standing clock in another room, only to find that a glass tube he stored in the clock’s case had fallen and stopped the pendulum at the earthquake’s jolt. Since the stalled clock read 4 hours, 11 minutes, and 35 seconds, and the shaking continued some time after he checked his watch, Winthrop confidently timed the quake at a minimum of four minutes, and noted: “By this accident, the beginning of the earthquake, I conceive, is determined with all the exactness that can be desired.”⁴² Significantly, this observation contradicted his own disoriented experience of the earthquake, which originally had led him to believe the quake lasted two minutes.

Like sermons, Winthrop’s work analyzed causality and passed value judgments on the ultimate morality of the event, but to different effect. He thought that the same forces that caused volcanoes also created earthquakes, believing fire “and proper materials for it to act upon, it is probable, are the principal agents in this affair.”⁴³ He theorized that both phenomena resulted from vapors coursing through subterranean tunnels that united distant regions of the Earth, a dominant eighteenth-century view of the natural mechanisms of earthquakes with roots among ancient philosophers. Winthrop carefully circumscribed his intellectual jurisdiction as a natural

⁴¹On “virtual witnessing” of scientific phenomena, see Steven Shapin, “Pump and Circumstance: Robert Boyle’s Literary Technology,” *Social Studies of Science* 14 (1984): 481–520.

⁴²Winthrop, *A Lecture on Earthquakes*, 13.

⁴³Winthrop, *A Lecture on Earthquakes*, 17. Many other natural philosophers held this view; see John Michell’s contention that earthquakes were caused by “subterraneous fires.” “Conjectures concerning the Cause, and Observations upon the Phaenomena of Earthquakes . . .” *Philosophical Transactions* 51 (1759–1760): 569 (hereafter referred to as *Transactions*).

philosopher—though it may have been a form of lip service to the church—claiming:

But you will take notice, that I speak here only of *physical* or *natural* ends. For though I make no doubt, that the laws of nature were established, and that the operations of nature are conducted, with a view, *ultimately*, to *moral* purposes; and that there is the most perfect coincidence, at all times, between God's government of the *natural* and of the *moral* world; yet it would be improper for me to enter into these disquisitions at this time, since my province limits me to consider this subject, only in relation which it bears to *natural philosophy*.⁴⁴

However, this admission did not prevent Winthrop from moralizing or connecting his work as a natural philosopher to religion. He insisted that natural events and processes should be viewed “not only as *wise*, but as *good*, if upon the whole they produce a *maximum* of good,” and that natural laws and events under God's direction would produce “an over-balance of *good*.” Far from viewing earthquakes as amoral natural occurrences, Winthrop believed they generally provided a net benefit to the globe, through God's intricate direction, despite the destruction they sometimes wrought. The geological phenomena causing earthquakes thus represented to Winthrop a “MIX'D state; in which there is such a variety of purposes, *natural* as well as *moral*.”⁴⁵ Winthrop took the argument further by envisioning the Earth as an organism, writing that:

... as in the animal body, the evacuations, which are of absolute necessity to maintain life and health, do yet sometimes run to such extremes as to prove mortal; so in like manner, these explosions of subterraneous vapor, whose effects have sometimes been so fatal, may, notwithstanding this, be highly conducive, and even indispensably necessary, to the good of this globe in general.⁴⁶

⁴⁴Winthrop, *A Lecture on Earthquakes*, 28. Those who discussed natural laws in the period often invoked God's metaphorical government and the notion that God was a lawmaker, as Winthrop did in this passage. Peter J. Bowler and Iwan Rhys Morus, *Making Modern Science: A Historical Survey* (Chicago: The University of Chicago Press, 2005), 342.

⁴⁵Winthrop, *A Lecture on Earthquakes*, 28, 31.

⁴⁶Winthrop, *A Lecture on Earthquakes*, 28.

Winthrop stressed that this benevolent view of earthquakes “ought to silence all the complaints of those who suffer either loss or terror by them.”⁴⁷ He thus saw New England’s residents not as sinners in the hands of an angry God, but as rational people in the palms of a benevolent one.⁴⁸

The passage of time changed Winthrop’s printed version of the lecture much as it did Chauncy’s sermon. The lecture contains copious, often page-long footnotes that supplemented the original text, to which Winthrop often added newly received firsthand reports as well as discursive notes. One of these footnotes, for instance, refuted a report of a chasm that supposedly formed during the earthquake as “pure fiction” based on Winthrop’s receipt of “undoubted intelligence from a Gentleman in that neighbourhood” who observed that the chasm was created not by the earth’s quaking but by dislodged fence stones that fell into sandy ground.⁴⁹ Also like Chauncy’s sermon, Winthrop’s lecture contained an appendix, only this appendix directly refuted a pamphlet printed after the earthquake by the Reverend Thomas Prince. Prince, a minister at Boston’s Old South Church, reprinted a 1727 sermon with changes that explored both first and second causes of earthquakes. To explain the latter, Prince—in his *own* appendix—identified electricity as the cause of earthquakes by citing Benjamin Franklin’s work (though Franklin himself did not draw a connection between earthquakes and electricity). Prince further suggested that the proliferation of lighting rods, which he believed could draw “the *Electrical Substance*” from the air and charge the ground, had caused the Cape Ann earthquake, and reasoned that “In *Boston* [there] are more [lightning rods] erected than any where else in *New England*; and *Boston* seems to be more dreadfully shaken.”⁵⁰ Winthrop responded to and ultimately

⁴⁷Winthrop, *A Lecture on Earthquakes*, 31.

⁴⁸Louis Graham, “The Scientific Piety of John Winthrop of Harvard,” *NEQ* 46 (March 1973): 112–18.

⁴⁹Winthrop, *A Lecture on Earthquakes*, 17.

⁵⁰Thomas Prince, *Earthquakes the Works of God, and Tokens of His Just Displeasure . . .* (Boston: Fowle and Fowle, 1755), 23. See also, Dennis R. Dean, “Benjamin Franklin and Earthquakes,” *Annals of Science* 46 (September 1989): 481.

dismissed the “little tract having lately appeared among us” in his appendix, closing with the hope that he had “fully vindicated the character of these innocent and injured *iron-points*; and have shewed, that all apprehensions of danger arising from them are perfectly groundless and chimerical.”⁵¹

The debate between Winthrop and Prince continued for months in the press. Other scholars have discussed the controversy in depth, and it tends to dominate the existing literature on the Cape Ann earthquake to the point of giving the impression that science and religion were more opposed than they truly were.⁵² While historians often note that Winthrop “won” the debate, John Adams suggested that many Bostonians bought Prince’s argument, at least for a time, as they believed that the iron rods “attempt to robb the almighty of his Thunder, to wrest the Bolt of Vengeance out of his Hand.”⁵³ Both Winthrop’s and Prince’s documents reveal the various voices that emerged after the event and the unsettled authority of science or religion; the two domains, rather than existing in continuous contention, often bled together, with ministers studying natural phenomena and philosophers offering moral explanations.

Both documents also suggest each author’s impulse to offer immediate commentary on the event—rushed reflection that always begged for supplementation later as new facts emerged or

⁵¹Winthrop, *A Lecture on Earthquakes*, 32, 38.

⁵²See, for example, Theodore Hornberger, “The Science of Thomas Prince,” *NEQ* 9 (1936): 26–42; Lauri Bauer Coleman, “Rain Down Righteousness: Interpretations of Natural Events in Mid-Eighteenth-Century Boston,” in *Remaking Boston: An Environmental History of the City and its Surroundings*, ed. Anthony N. Penna and Conrad Edick Wright (Pittsburg: University of Pittsburg Press, 2009), 246–49; James Delbourgo, *A Most Amazing Scene of Wonders: Electricity and Enlightenment in Early America* (Cambridge: Harvard University Press, 2006), 66–72; John E. Van De Wetering, “God, Science, and the Puritan Dilemma,” *NEQ* 38 (1965): 494–507; Eleanor M. Tilton, “Lightning-Rods and the Earthquake of 1755,” *NEQ* 13 (1940): 85–97; and Valencius, *New Madrid Earthquakes*, 211.

⁵³John Adams, “Marginalia in Winthrop’s Lecture on Earthquakes, December 1758?,” in *Founding Families: Digital Editions of the Papers of the Winthrops and the Adamases*, ed. C. James Taylor (Boston: Massachusetts Historical Society, 2016), <https://www.masshist.org/publications/apde2/view?mode=p&vol=DJA01&page=62> (accessed October 27, 2016). See also Zoltán Haraszti, “Young John Adams on Franklin’s Iron Points,” *Isis* 41 (1950): 11–14.

new fictions required silencing. In January of 1756, Winthrop would submit a version of the observations in his lecture to London's Royal Society in a letter later published in its *Philosophical Transactions*. The introduction recognized just this issue of the time needed to obtain a full account of the physical event, as he wrote: "I deferred writing till this time, in order to obtain the most distinct information of the several particulars relating to it, both here and in the other places where it was felt, and especially the extent of it."⁵⁴ Thus, the social expectation for ministers and scientists to immediately and publicly interpret the earthquake remained at odds with an accurate, holistic account of this disaster, creating a public picture of the earthquake as an event under constant revision.

The Earthquake and the Press

As the bearer of news, good or bad, newspapers from this period also faced the obligation of providing speedy commentary on the earthquake. The form of newspapers allowed various, often contradictory voices to be published side-by-side from the pens of ministers and natural philosophers themselves, further revealing the fractured experience of the event. Articles about the earthquake ranged from quotidian reports of broken pewter objects to notices from other cities that felt the quake to in-depth testimonies of its effects in a particular backyard. *The Boston Gazette, or Country Journal*, published by Benjamin Edes and John Gill, was one of the first newspapers to respond at length to the earthquake. On November 24, 1755, the first Monday after the earthquake, the paper published two detailed reports of the temblor, each penned by a different and unnamed author.⁵⁵ Comparing the two accounts reveals how newspapers enabled a multiplicity of voices to comment on the nature of the event.

⁵⁴John Winthrop, "An Account of the Earthquake Felt in New England, and the Neighbouring Parts of America, on the 18th of November 1755. In a Letter to Tho. Birch, D.D. Secret. R. S. by Mr. Professor Winthrop, of Cambridge in New England," *Transactions* 50 (1757-1758): 1.

⁵⁵*The Boston Gazette, or Country Journal*, November 24, 1755.

The first, more scientific report focused on the specific timing and physical effects of the earthquake, whereas the second described the hand of providence in the event. Though both were published anonymously, we can attribute the former to John Hyde of Boston, as the Royal Society later published a letter from Hyde with the same information and a few modifications in its *Transactions*.⁵⁶ Hyde, a fellow of the Royal Society, began the newspaper account by describing his report's own origins. This preamble—which disappeared from the *Transactions* version of the letter—can be read as a mantra for the manner in which newspapers explored the event by holding various views together in tension.⁵⁷ Hyde stated that he originally wrote the memorandum “for myself [rather] than for publick View,” but decided to allow its printing for the potential public benefit, since “People at a Distance may possibly have a juster Idea of the Earthquake, by comparing several Accounts of it together, written by different Persons, than from one only.”⁵⁸ Hyde then began his account by describing the calm skies of the preceding night, weather being a common preoccupation of earthquake commentators.⁵⁹ When aroused from his slumber,

⁵⁶John Hyde, “An Account of the Earthquake Felt at Boston in New England, Novem. 18, 1755 . . .,” *Transactions* 49 (1755-1756): 439-42. Hyde's detailed account of the event remains relevant in the twenty-first century. Seismologist John Ebel draws heavily from Hyde's account in his 250th anniversary retrospective article on the Cape Ann earthquake. Ebel notes that Hyde's description of the shaking “is consistent with *S*- and *Lg*-wave motions,” and he uses Hyde's account to infer the possible *S-P* time of the earthquake. “The Cape Ann Earthquake of 1755,” 77. In addition, Weston Geophysical Research, Inc. has relied heavily on diary entries, newspaper reports, and other eighteenth-century accounts described in my essay to reconstruct the seismic history of New England. *Historical Seismicity of New England*, Boston Edison Company, Docket No. 50-471, revised March 1997.

⁵⁷In addition to deleting this preamble, Hyde's letter to the Royal Society omitted other details. In the *Transactions*, Hyde wrote only that he was “awaked” from the shaking instead of stating he was “awaked, or rather alarmed” as he had stated in the newspaper. Emotions and terror may have been excised from the account to prepare it for what was viewed as a more scientific audience. “An Account of the Earthquake Felt at Boston,” 439.

⁵⁸*The Boston Gazette, or Country Journal*, November 24, 1755.

⁵⁹While colonists' belief in a connection between weather and earthquakes seems quaint today, they may have had a point. Ebel describes constant background vibrations on seismographs as “microseisms,” many of which are caused by weather. He offers a way of reading weather-related phenomena through instrumentation typically used

he recognized the rattling of his bed as an “EARTHQUAKE, having experienced one before” and rushed to the window to look for “any Thing unusual in the Appearance of the Sky, or Heavens.” The quake abated after about six or seven seconds but then returned with “redoubled Violence and Noise, the Windows, Doors, Chairs &c. being prodigiously agitated,” until it seemed the house might “be swallowed up intire,” causing Hyde to sense his own state of “Danger.” He noted: “People, I perceive, differ very widely respecting the whole Duration of the Earthquake, from the first apparent Symptoms of it, till it was intirely over; some supposing it to have been 6 or 7 Minutes, some 4 or 5, and others, scarce more than one.” Like Winthrop, Hyde recounted his own attempts to time the event, stating that “According to the best Computation I am able to make, which is from what I *did* during the Continuance of it, removing from one Place to another, as related above, I think it could be but little more, and certainly not much less, than 2 Minutes.”⁶⁰ Winthrop, on the other hand, insisted the earthquake lasted at least twice as long, underscoring disagreement as to even the most basic features of the event.

Hyde’s account reflected many of Winthrop’s concerns in its attempts to pinpoint the precise timing of the quake; however, it diverged from Winthrop’s account in one significant respect. Where Winthrop sought to understand the earthquake’s effects on the land itself, newspaper reports like Hyde’s largely focused on how the earthquake influenced the social world, as he wrote: “The visible Effects of the Earthquake are very considerable in the Town; to be sure much more considerable than those of any other, which has been known in it.” Noting the damage to chimneys, Hyde estimated approximately 100 had been leveled and at least 1,500 damaged to some degree, and emphasized that on the “low, loose Ground, made by Encroachments on the Harbour,” or those areas created by landfill, “the

to monitor earthquakes, noting that “scientific phenomena are inherently related” and that one discipline’s background noise might be another discipline’s signal. “Watching the Weather using a Seismograph,” *Seismological Research* 73 (2002): 930.

⁶⁰*The Boston Gazette, or Country Journal*, November 24, 1755.

Streets are almost covered with the Bricks that have fallen.” Clocks stopped, cisterns burst, and pumps dried up, since, according to Hyde, “the Convulsions of the Earth [had] choaked the Springs that supplied them, or altered their Course.” As these details reveal, newspaper reports did not neglect to note the impacts on the underlying environment, but they often reported these effects in relation to consequent impacts on civilization. In the press, the environment had a decidedly human referent.⁶¹

Hyde’s report did not reflect on the moral *or* physical causes of the earthquake, but instead on its disruptive consequences. The second anonymous account directly adjacent to Hyde’s report on the front page of the *Gazette*, however, speculated on the spiritual causes of the earthquake, much in line with sermons. The report depicted the cause of the earthquake as categorically obvious, insisting “no one can be at a Loss for the *moral Cause* of this Visitation—‘Tis *Sin*, and that *only*, that enkindles the Anger of the Almighty GOD. . . . To enumerate the particular Vices that abound among us, would fill up more Room, than a Sheet would contain.”⁶² In fact, the report pays almost exclusive attention to causality, noting also the existence of second causes but not speculating on their nature at length. Despite its many similarities with sermons, this report, like Hyde’s account on the other side of the page, underscored the fractured response to the event, in contrast to sermons that often belabored commonality of experience. For instance, it noted that sinners would likely fear the event, whereas “those happy Ones who had before harkened to the still Voice of the blessed Spirit of God” would not. Thus the author relayed: “I must needs say [the earthquake] affected my Mind with a

⁶¹*The Boston Gazette, or Country Journal*, November 24, 1755. See also William A. Newman and Wilfred E. Holton, *Boston’s Back Bay: The Story of America’s Greatest Nineteenth-Century Landfill Project* (Boston: Northeastern University Press, 2006), 178. The 1755 earthquake caused considerable damage in the reclaimed land along Boston’s harbor, indicating the dangers posed for Boston’s Back Bay neighborhood in particular, because it is filled land and especially susceptible to a process known as liquefaction in which moist, loosely packed sediment acts like quicksand during earthquakes, causing buildings to sink in the process.

⁶²*The Boston Gazette, or Country Journal*, November 24, 1755.

sensible Pleasure, and seemed to me to promise some happy Effects.”⁶³

In its format and words, the front page of the *Gazette* captured the manifold ways of responding to the earth’s movements, and in the coming weeks, the debate between Winthrop and Prince migrated to the paper’s pages. As a genre that allowed many voices to speak at once, newspapers embodied the diversity of reactions to eighteenth-century natural disasters, as competing voices cut fissures across a single page. Furthermore, since newspapers could continuously churn out reports that included new details of the earthquake’s effects as time progressed, they provided a continuous stream of revisions. Still, there was one event that can be viewed as a geological revision and “appendix” to all that had transpired so far in the pages of newspapers, the summons of sermons, and the calculations of lectures across the eastern seaboard.

Appendix: The News from Lisbon

On November 1, 1755, only 17 days before the Cape Ann earthquake, the city of Lisbon experienced an earthquake of truly awful proportions. Tens of thousands likely died as buildings toppled like playthings and a tsunami and fires followed in the quake’s wake, nearly destroying the city. After considering this catastrophe, Voltaire concluded, “There is evil upon the earth.” Mike Davis has called the Lisbon earthquake the “Hiroshima of the age of reason” for its curbing of the Enlightenment’s rational optimism.⁶⁴ But on November 18, 1755,

⁶³*The Boston Gazette, or Country Journal*, November 24, 1755.

⁶⁴Voltaire, quoted in Nicholas Shrady, *The Last Day: Wrath, Ruin, and Reason in the Great Lisbon Earthquake of 1755* (New York: Viking, 2008), 120–21. Davis, *Ecology of Fear*, 282–283. See also T. D. Kendrick, *The Lisbon Earthquake* (Philadelphia: J. B. Lippincott Company, 1955). Voltaire developed an interpretation of earthquakes opposite of Winthrop’s belief in their ultimate benefit to the globe, though his more immediate targets were Alexander Pope and Gottfried Wilhelm Leibniz. In 1783, decades after the Cape Ann and Lisbon earthquakes, Samuel Williams, Winthrop’s successor as Harvard’s Hollis Professorship of Mathematics and Natural Philosophy, continued to side with Winthrop, writing: “The destruction of *Lisbon*, by the earthquakes in 1755, was also attended with the most tragical scenes of desolation, death and misery. And yet, notwithstanding all these dire effects of earthquakes, it is very possible, that

colonists in New England had not yet heard of this event due to the pace of transatlantic news in the eighteenth century. Having spent several weeks amending their notions of the Cape Ann earthquake, Americans faced yet another call to revision with the arrival of the news of Lisbon in late December of 1755.

The knowledge of Lisbon complicated the notions of time involved in appraising New England's temblor. Most American reports produced in November of 1755 gathered details of damage and environmental transformation that transpired during and after the Cape Ann event. But Lisbon forced American colonists to incorporate changes in the earth that *preceded* their own disaster into their conceptualization of the events of November 18, suggesting a recursive notion of time and fact gathering. On December 29, 1755, the *Gazette* once again published a front-page article on earthquakes that reframed Cape Ann in terms of the news from Lisbon. The unnamed author wrote: "[I]t seems that *we* in this Country are under fresh and unspeakable Obligations to Him [God] who preserv'd *us* in a Shock perhaps not less severe than was felt there; for it ought always to be remember'd, that had the late terrible Earthquake here, continued in its Violence a very *minute* Space of Time longer, in all Probability, we had suffer'd the like fate with them."⁶⁵ This article also enclosed a firsthand account of the Lisbon earthquake's effects that demonstrated a soon-to-be-orthodox interpretation of Lisbon as a sign God had spared New England, and that the coincidence of the earthquakes signaled some greater natural turmoil. Lisbon drew Americans' eyes outward and toward the larger world, forcing them to recognize they were not alone in their visitation from providence. At the same time, it drew their eyes inward again. Given this earthquake's early-morning timing—a fact not lost on Puritan

the laws and causes from whence they arise, may be a necessary provision, and a real advantage to the globe." See Samuel Williams, "Observations and Conjectures on the Earthquakes of New-England," *Memoirs of the American Academy of Arts and Sciences* 1 (1783): 304.

⁶⁵*The Boston Gazette, or Country Journal*, December 29, 1755.

colonists—they now viewed their redemption from Cape Ann as a literal wakeup call to change their sinful behavior.⁶⁶

This viewpoint surfaced in many religious works. Chauncy delivered a sermon on January 22, 1756 that interpreted Lisbon's shaking as a signal to Portugal's inhabitants to repent for their sins—many people in Lisbon were Catholic after all, and the event happened on the morning of All Saints' Day. Chauncy wrote of Lisbon: "But it may reasonably be looked upon as a *call* to us also . . . as we were visited in the same month, by a like *shaking of the earth*, and to a more terrible degree than was ever known in the country before."⁶⁷ Similarly, in a poem responding to the Lisbon and Cape Ann earthquakes, Jeremiah Newland wrote: "For by God's Hand, *New-England* / was spared from much hurt," and signed off with the admonition:

And don't I say forget that Day,
the Eighteenth of *November*;
On Tuesday Morn the Lord did warn,
let us always remember.⁶⁸

An anonymous poem titled *Lines Made After the Great Earthquake* rose to a more alarming pitch:

While hapless Cales and Lisbon shake,
From God their judgments did partake,
His mercy sav'd his grace adore,
Which spar'd New-England's happy shore.
While Lisbon sands roll as the waves,

⁶⁶Modern-day seismologists have not ruled out the possibility that the earthquakes were related. Beginning in the early 1990s, seismologists began to recognize "remotely triggered earthquakes." In such events, a smaller earthquake can be triggered by a large temblor in a similar fashion to an aftershock, but at a much longer distance from the mainshock. Susan Elizabeth Hough and Roger G. Bilham argue that "we certainly can no longer say with conviction that no link exists" between the Cape Ann and Lisbon earthquakes, although clear evidence for their relation is shaky. *After the Earth Quakes: Elastic Rebound on an Urban Planet* (Oxford: Oxford University Press, 2006), 24.

⁶⁷Charles Chauncy, *The Earth Delivered from the Curse to Which It Is, at Present, Subjected* . . . (Boston: Edes & Gill, 1756), 22.

⁶⁸Jeremiah Newland, *Verses Occasioned by the Earthquakes in the Month of November, 1755*. Bdses 1755 Nov., Massachusetts Historical Society, Boston.

And thousands cast into their graves:
 While Korah and his sons are lost,
 His power secures and guards our coast.⁶⁹

These poems begged New Englanders to heed God's warning while also recasting the Cape Ann earthquake as *less* of a disaster than initially thought.

This realization that earthquakes brought ruin across the Atlantic world prompted more expansive theorizing on the causes and roles of earthquakes not only locally, but in multiple continents signaling the emergence of a nascent transatlantic science. Both earthquakes coincided with unusual commotion in the ocean waters on which the damaged cities sat, something that had not been frequently observed in English-language histories of earthquakes at the time, aside from earthquakes that affected the waters of the Caribbean with some frequency.⁷⁰ Seeing the connection prompted John Perkins of Boston to write "An Essay on the Agitations of the Sea" in 1756, where he called the Atlantic Ocean "the grand theatre of these events" in New England and Lisbon.⁷¹ Thus, while observations of ocean activity such as those recounted in Chauncy's appendix initially served as an interesting background note, the Atlantic itself now moved to the foreground of earthquake interpretation.⁷²

⁶⁹*Lines Made After the Great Earthquake, In 1755, which Shook North and South America, with Great Destruction in Cales, in Lisbon, and Most of the Adjacent Kingdoms*, Library of Congress, Boston, 1755, [http://memory.loc.gov/cgi-bin/query/h?ammem/rbpebib:@field\(NUMBER+@band\(rbpe+03501500\)\)](http://memory.loc.gov/cgi-bin/query/h?ammem/rbpebib:@field(NUMBER+@band(rbpe+03501500))) (accessed October 27, 2016).

⁷⁰The ocean was also a presence in earthquakes that affected Jamaica and other islands in the Caribbean in the seventeenth and eighteenth centuries, as Matthew Mulcahy has shown. In fact, earthquakes so frequently hit Jamaica that its inhabitants came to view them less as wonders in need of providential analysis than as features of the island environment. See Matthew Mulcahy, "The Port Royal Earthquake and the World of Wonders in Seventeenth-Century Jamaica," *Early American Studies* 6 (2008): 391–421.

⁷¹John Perkins, *An Essay on the Agitations of the Sea . . .* (Boston: B. Mecom, 1761), 3. Note that Perkins wrote the account in 1756.

⁷²The Atlantic became a point of focus in other realms of natural history and natural philosophy around this time, as well; for instance, Fredrik Albritton Jonsson has recently described theories (especially in the writings of Swedish-Finnish naturalist Pehr Kalm) that the waters of the Atlantic were diminishing in the middle of the eighteenth

Perkins found the oceanic movements in these events all the more wonderful for their apparent distinctiveness, writing: “we have no accounts of any thing like them in former ages. That none such have been in the two last centuries, we are well assur’d; our navigation, trade, and commerce having constantly furnish’d us with intelligence from most parts of the world.” Since earthquakes infrequently churned northern Atlantic waters, Perkins concluded there was surely “something singular in the shocks that have this effect.” He ultimately hypothesized that the settling of highlands exerted pressure on the ocean basin in the Cape Ann and Lisbon earthquakes, causing the seafloor to tremble and agitate the waters above it.⁷³ While seismologists now locate the origin of the quake beneath the ocean floor rather than in the surrounding lands, Perkins was right to redirect people’s eyes toward the ocean.

Focusing on aquatic movements in page-devouring footnotes that appeared in his printed tract, Winthrop noted that both earthquakes were accompanied by changing tides in the Caribbean, a fact he believed further corroborated the theory that subterranean canals filled with combustible materials linked disparate parts of the globe and could cause eruptions in the seabed. Of the oceanic commotion on November 1, he wrote: “Here now we have an earthquake extending it’s [*sic*] effects across the *Atlantic*. An amazing distance truly for an earthquake!”⁷⁴ The ocean’s centrality in these events surfaced in writings from European commentators as well. Writing to

century; see “Climate Change and the Retreat of the Atlantic: The Cameralist Context of Pehr Kalm’s Voyage to North America, 1748–51,” *WMQ* 72 (2015): 99–126.

⁷³Perkins, *An Essay on the Agitations of the Sea*, 3, 5.

⁷⁴Some have suggested that the Cape Ann earthquake may have caused a tsunami, since reports from the Leeward Islands observed water receding from the shore, leaving boats and fish stranded, until the water returned in a large wave that raised the sea level to about six feet higher than usual. Angus Macleod Gunn, *Encyclopedia of Disasters: Environmental Catastrophes and Human Tragedies* (Westport, CT: Greenwood Publishing Group, 2008), 82. Winthrop relayed some of these reports in the footnotes added to his printed lecture and observed that, given the timing of this event in the ocean approximately nine hours after the Cape Ann earthquake, he felt it was “very likely to have been occasioned by the same convulsion of the earth.” Winthrop, *A Lecture on Earthquakes*, 15, 19.

British naturalist John Ellis, for instance, Dutch physician John Albert Schlosser described the Lisbon event as a “water-quake” that “gives our philosophers much to do.”⁷⁵ Thus, the Atlantic became a uniting theme in Old and New World discussions about each earthquake, as well as a physical membrane connecting the two events.

News of Lisbon did not settle the disputes raging over the causes of earthquakes in New England, nor did it provide a clear social authority for judging upheavals in the earth. It did, however, urge a widespread reorientation of the commentary on New England’s earthquake—one that largely rested on transatlantic scientific observation. In this sense, Lisbon provided a useful filter for focusing discussions of Cape Ann by creating a unitary frame of reference. The geological appendix of Lisbon required that colonists look not merely backward in time, but also outward across geographic space: out of a New World state of mind, into the dark waters of the Atlantic, and across those waters to Europe. It forced them to expand their notion of their own event beyond parochial, inward concerns, and past the shaking land to the commotion of the deep, even if they simultaneously looked inward toward their hearts to thank God for sparing them. Lisbon thus unsettled the border drawn around the Cape Ann earthquake. It led preachers, philosophers, and printers alike to go back, once more, to that fateful New England day, and reinterpret it not as a singular rupture in their own world, but as the successor of one of the globe’s most fearful quakes yet and as part of a greater transatlantic story. November 18, 1755: not as terrible as they thought. Accustomed to time marching forward, providing more and more detail on the Cape Ann earthquake’s cumulative effects, colonists now went back to before the beginning of their own troubles, to a time when the air was serene and every weathervane stood intact to tell them the direction the winds were blowing.

⁷⁵Letter from John Albert Schlosser to John Ellis, December 5, 1755. John Ellis Manuscripts, Volume 2, The Linnean Society of London, London.

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