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Sums Theological: Doing Theology with the London Bills of Mortality, 1603–1666

Spencer J. Weinreich

Program in the History of Science, Department of History, Princeton University, Princeton, New Jersey, USA
Email: sjw2@princeton.edu

Abstract
From 1603 until the mid-nineteenth century, weekly bills of mortality were printed and published in London, providing detailed statistics on births, deaths, and plague fatalities for each parish. This article analyzes the currency of the bills and their numbers in English religious thought during and after the four great plague epidemics London experienced in the course of the seventeenth century (1603–1604, 1625–1626, 1636, and 1665–1666). A broad survey of sermons, pamphlets, treatises, poems, and dialogues from these years reveals not only the bills’ ubiquity as an index of divine punishments, but the new kinds of intellectual work made possible by a multiplicity of numbers keyed to times and places. Claims about the moral, doctrinal, and political meanings behind the plague could now be made with an unprecedented specificity and sophistication, seized upon by High Church Anglicans, Puritans, and Dissenters alike. As an episode in the history of empirical theology, the bills’ ecclesiastical reception vindicates theology’s central place in the epistemological transformations of the early modern period, as well as the influence of new kinds of empirical data on the parameters of religious thought.

Keywords: Early Modern Europe; London; Quantification; Empirical Theology; Plague

I. Introduction

Plague is a long-standing problem for theology, going as far back as Genesis 12 and Thucydides’s History of the Peloponnesian War (circa 404 BCE). Early modern England knew the plague of old, as did virtually every community in Europe, one of the most familiar and most feared of God’s scourges. For many, outbreaks were moments of renewed religiosity, as the terrified sought comfort, the guilty sought redemption, and the pious sought understanding—and godly authors sought readers, producing a flood of spiritually inclined publications. But as the seventeenth century

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began, major changes in how the plague was known, specifically in London, were afoot. Starting in 1603, the city authorities provided for the regular publication of bills of mortality, weekly records of births and deaths in the metropolis (fig. 1). In plague-time, each week’s bill was scrutinized for clues as to the epidemic’s whereabouts and movements, with the numbers circulating widely in a variety of forms, written and oral.\(^2\)

Early modern England was witnessing a profound expansion in numeracy across the social scale, as well as the development of new mathematical tools such as decimals and logarithms and the quantification of ever more aspects of the natural and human world. They These trends, coupled with the appearance of affordable mathematical textbooks, broadened the currency of numbers for articulating claims in seventeenth-century religious thought. Theodore M. Porter characterizes quantification variously as “a political solution to a political problem,” a means of “projecting power and coordinating activity,” and “a social technology.” It was all those things in early modern England, but the preoccupations of the age meant that such functions were always also theological.

Neither the seventeenth century nor plague introduced numbers into English religious thought. Numbers had had an immense significance in Christian spirituality since the apostolic age, and before that in both Jewish and Hellenistic traditions. Perhaps the greatest quantitative problem of the medieval period was working out the date of Easter. Attempts to establish such spiritual statistics as the moment of Christ’s birth or the depth of hell were already well established in the Middle Ages.

Simon Fish had marshalled quantitative arguments to convince Henry VIII to appropriate the wealth of the monasteries, while pastoral manuals recommended elaborate number schemes to guide confessions (“sins against the seven commandments of the church, seven sacraments, Ten Commandments, seven deadly sins”). The early modern drive to model scientific and moral knowledge after the abstract reasoning of mathematics proceeded in tandem with a demand for concrete, empirically derived data.

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8Simon Fish, A Supplicacyon for the Beggars (Antwerp: Joannes Grapheus, 1529), 2r–3r.


The regular publication of the bills of mortality from 1603 onward made numbers of this kind a thoroughly public commodity (and a peculiarly English phenomenon). The centralization of early modern British printing, heightened literacy and numeracy rates in cities of the period, London’s disproportionate size and sufferings in plague-time, and the ubiquity of the London bills in turn conspire to make this a largely metropolitan story. That said, other English cities—including Colchester, Oxford, Bristol, Norwich, York, Chester, and Newcastle—experimented with the tabulation, if not the regular publication, of plague mortality. Moreover, we will find London’s numbers, and bills themselves, relayed to and by authors and readers across England and Scotland, and even into the Low Countries, disseminating arithmetical modes of thought far beyond the capital.

The corpus of sermons, homilies, tracts, poems, and pamphlets published during or just after the major epidemics of the seventeenth century (1603–1604, 1625–1626, 1636, and 1665–1666) is shot through with numbers supplied by the bills, used to rebuke sin, encourage reformation, and score polemical points. The bills themselves became a fixture in the city’s imaginary, while their contents were repeatedly and carefully cited to demonstrate God’s rigor or mercy (as applicable). Because the bills’ figures were profuse, precise, empirical, and chronologically and geographically specific—tracking shifts in divine displeasure more closely and tying them to contemporary events more directly—they lent themselves to distinct forms of rhetorical, analytical, and theological work. Rarely are numerical arguments the mainstays of these texts, but their ubiquity and diversity attest to the currency of numbers in early seventeenth-century English religiosity. More importantly, writers’ uses of the bills reveal a widespread quantitative savvy vis-à-vis novel sources of empirical data, affirming theology’s place among the empirical disciplines that transformed the early modern world.


13Slack, Impact of Plague, 107, 239.


15The bills continued to attract interest, theological and otherwise, outside of plague-time; I have concentrated on these seven years because the worst outbreaks attracted the greatest contemporary attention and so bring these dynamics into the highest relief.

II. Bills of Morality [sic]

John Graunt, an autodidact draper who used the bills to develop quantitative demography, believed that they originated in response to the rampant mortality of plague-time. The earliest, handwritten bills have been traced to various points in the sixteenth century, and while the circumstances of their creation remain unclear, their regular print publication began with the plague of 1603. Producing the bills became a major source of income for the Company of Parish Clerks, and they survived into the mid-nineteenth century. Ubiquitous registers of divine punishments, evocative of the kind of spiritual stocktaking clergy urged upon their flocks, the bills readily entered the religious literature of early modern London. As Mark S. R. Jenner writes of the bills’ close cousins, the Lord Have Mercy broadsides, they “helped construct the imagery and imaginary of ‘popular Protestantism.’” In the English case, at least, the bills’ data makes it impossible for the historian to separate the “body count” from “how the language of the disease could be used to talk about and connect up with wider social concerns and cultural preoccupations.”

Whatever their origins, the bills undoubtedly had a special connection to plague. The disease was the only cause of death tabulated parish by parish each week, and its epidemics cemented the bills’ place in England’s consciousness. In turn, wherever the bills went, they “stimulate[d] discussion and analysis of plague.” On August 3, 1665, Samuel Pepys rode from Deptford into Essex, and “all the way, people, Citizens, walking to and again to enquire how the plague is in the City this week by the Bill.” Letter writers, from scholars like Joseph Mead to journalists like Henry Muddiman, gave correspondents regular updates on the weekly figures, often enclosing the bills themselves. In a plague year, the publication of the bill every Thursday entered the weekly routine, just like church attendance on Sunday. In 1637, the balladeer Humphrey Crouch versified on The Bellman’s call on Thursday morning:

This day the weekly Bils come out  
To put the people out of doubt  
How many of the Plague do dye.

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22 Slack, Impact of Plague, 239; and Rolfe, “It Is No Time,” 575.
Crouch continued in an ominous vein:

if our transgressions all,
Both how we sinne, and how we fall,
God should take notice what they are,
Where should we sinfull men appeare?\(^\text{25}\)

The rhymester was not alone in spotting a parallel between the numbering of plague deaths and the tracking of sins. The two variables were not independent, sin being the accepted cause of plague, and the metaphor of sin as disease was truly ancient.\(^\text{26}\) Many contrasted attention to the bills with the neglect of spiritual contagion, among them the nonconformist minister Matthew Mead: “So manie Thousands dead this Week, so manie another! . . . But were People formerly thus affected, whilst we were bringing this upon our selves? Did they cry out then, Oh how manie Thousand Oaths are sworn in a Week? . . . How manie Thousands Drunk, and how manie commit Lewdness? Had we had Weeklie Bills of such Sins brought in, they would far have exceeded the largest Sums that ever yet the Mortalitie made.”\(^\text{27}\) Taking a different tack, the Jacobean preacher James Godskall decries what the land has assiduously counted in happier days: “thou hast gloried in the number of the people, and hast long bene busie with a vaine Arithmeticke, in the numbring of thy riches, prosperitie, housen &c, and therefore the Lord hath punished thee, with a diminution of people; and hath teachè thee another Arithmeticke.” God was countering the nation’s “addition & multiplication” with “Substraction and diuision.”\(^\text{28}\)

The image of pestilence as God’s bookkeeping pervades early modern plague writing, retailed by Thomas Dekker, Ben Jonson, Samuel Pepys, Daniel Defoe, and a host of lesser lights. The bills were the divine ledger, balancing sin with chastisement.\(^\text{29}\) But, Godskall explains, they should also prompt a spiritual accounting of one’s own, a reckoning of, and a reckoning with, one’s sins.\(^\text{30}\) Spiritual diaries often coopted the language and forms of accounting for the tracking of sins and virtues.\(^\text{31}\) Pepys engaged in what Ernest B. Gilman calls “a system of sacred economics,” juxtaposing plague and salvation with his personal finances, all of them the trackable works of divine justice.\(^\text{32}\)


\(^{27}\) Matthew Mead, *Solomon’s Prescription for the Removal of the Pestilence; or, The Discovery of the Plague of Our Hearts, in Order to the Healing of That in Our Flesh* (London, 1665), A3v.


\(^{32}\) Gilman, *Plague Writing*, 225.
On the other hand, Robert Horne reduced all human arithmetic to insignificance next to divine infinitude. With God, “it is no more to saue his people when thousands die then when two; and when tenne thousands perish, then when ten (only) are cut downe for the graue.”33 One “I. D.” refused to condemn Londoners’ “diligence” towards the bills but lamented that this attention was not having the proper effect: increases in mortality did not inspire prayer or reformation, while decreases were met with overconfidence, rather than thankfulness.34 Thomas Brewer cast the bill itself as a judgment on the people’s response, for the “bill of Terror” would only worsen “if we still goe on in wickednesse.”35 And the bills were not just a model for spiritual accounting, they helped to fill the ledger. Horne advises, “take your bill, or booke of tables, and write what God did fearefully in that great Plague, and strangely in remouing it.”36 Horne’s suggestion mirrored the widespread practice of updating a purchased broadside with fresh figures; printers frequently provided a blank space for this very purpose.37 Contemporary diaries and family Bibles are likewise littered with mortality figures, a continuous record of the Lord’s doings.38 If the bills were a ledger of the wages of sin, it was generally agreed that the Lord was being lenient in his accounting.39 The Cambridge minister John Edwards meditated on what he called “the plague of the heart,” whose bill of morality would outstrip that of mortality: “the Bodily Plague may kill it’s thousands, but this [spiritual plague] it’s ten thousands [1 Sam. 18:7].” (Note the biblical turn of phrase that identifies sinful Londoners with the Philistines slain by Saul and David.) If such a bill were drawn up, “not one Parish would be found clear, no not one house.”40 A skillful preacher, Edwards is playing on his congregation’s fears; the “searchers” who certified whether a house was infected or not (“found clear”), and the quarantine that marked out buildings as infected and sealed the inhabitants—diseased and healthy alike—inside for weeks on end were the stuff of London’s nightmares.41

The nonconformist Thomas Doolittle was more encouraging, urging readers to take comfort in the knowledge of their election. To find oneself in the bill of mortality would be no great matter, “when you are first in the Book of Life.” Such assurance comes “[w]hen you look upon your self as a dying man.”42 Joseph Mead sent a friend “a

34I. D., Salomon’s Pest-House; or, Tovver-Royall (London: Thomas Harper, 1630), A4v.
35Thomas Brewer, A Dialogue Betuixt a Cittizen, and a Poore Countrey Man and His Wife, in the Countrey (London: R. Oulton, 1636), B4r.
36Horne, Shield of the Righteous, 64; and Thomas Doolittle, A Spiritual Antidote against Sinful Contagion in Dying Times (London, 1665), 6.
39William Sancroft, Lex Ignea; or, The School of Righteousness (London: printed for R. Pawlett, 1666), 19; and Doolittle, Spiritual Antidote, 32.
42Thomas Doolittle, Spiritual Antidote, 108.
Bill of the Plague the more to kindle your devotions on Wednesday [the day appointed for penitential fasts].” The bills, inventories of God’s scourges, conduced to reflection upon mortality, the wages of sin, and divine justice. But the bills were more than symbols: they were ink and paper publications containing substantial quantitative data about the plague. These numbers became, as Graunt puts it, “a Text to talk upon,” talk that was frequently theological in nature.

III. Fear and Mercy by Numbers

Before the numbers, however, there was the Word. The Bible, as Edwards’s nod to Saul and David reminds us, is filled with numbers: the interminable lifespans of the patriarchs, the dimensions of the Ark and the Temple, and, most importantly for our purposes, death tolls. Thus, the sonorously round numbers of Scripture, the hundreds and the thousands, provided a ready vocabulary for reckoning plague mortality. Contributing to this pattern was the popular inclination toward round numbers and multiples of ten; even “political arithmetic”—Graunt’s application of quantitative reasoning to problems of governance—turned upon ratios and proportions more than hard numbers. As a result, much seventeenth-century numerical discourse involved what Margaret Pelling has termed “numberless number,” a culturally determined combination of the qualitative and the quantitative.

Yet when Richard Eedes, dean of Worcester, wrote that the 1603–1604 outbreak had “verefied that of the Prophet, a thousand shall fall beside thee, and ten thousand at thy right hand [Ps. 91:7],” these numbers were neither plucked out of thin air nor solely a biblical quotation. Even the roundest figures had a claim to rest upon the bills of mortality, if for nothing more than a warrant—that thousands were in fact dying. Late in 1666, Edward Reynolds, Bishop of Norwich, preached a fast-day sermon in which he intoned with the prophet Isaiah that God’s hand was stretched out still (Isa. 9:17), “for he hath in these two years last past emptied this City and Nation in very many parts thereof, as we may I presume with good Reason compute, above an Hundred Thousand of her Inhabitants.” By this point, London’s bills had tallied more than seventy thousand plague deaths; given the Great Plague’s ravages outside

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44Graunt, Natural and Political Observations, 1.
46Margaret Pelling, “Far Too Many Women? John Graunt, the Sex Ratio, and the Cultural Determination of Number in Seventeenth-Century England,” The Historical Journal 59, no. 3 (September 2016): 718–719. Exegetes from Jerome to John Calvin recognized that the numbers of Scripture were not always to be taken literally but rather figuratively or mystically (spiritualiter). In our period, Horne glossed Psalm 91 in this sense: “thousands, that is, great numbers, and ten thousands, that is, numbers without number.” Jerome, Epistulae, 46:7; William J. Bouwsma, John Calvin: A Sixteenth-Century Portrait (Oxford: Oxford University Press, 1988), 119; and Horne, Shield of the Righteous, 58.
47Richard Eedes, Six Learned and Godly Sermons Preached Some of Them before the Kings Maiestie, Some before Queene Elizabeth (London: Adam Islip, 1604), 50v.
the capital and contemporary awareness that the bills underreported plague mortality, the bishop’s computation is quite sound.49

Despite the availability of annual summaries published as “the generall or the Kings Bill,” Reynolds’s attention to gross totals was but one, and hardly the most common, way of reading the bills.50 Graunt complains that his contemporaries “made little other use of them, then to look at the foot, how the Burials increased, or decreased.”51 Such a modus legendi made good theological, as well as practical, sense: increases and decreases in mortality were God’s modulations of his punishments. Londoners did not fail to discern the divine hand behind the bills: the poet Henry Petowe speaks of a decrease in mortality as “my blessed Saviour lessen[ing] his weekly Number”; on October 22, 1665, the Essex vicar Ralph Josselin wrote in his diary that “God gave a great abatement to the plague.”52 Conversely, in 1604, the Suffolk rector Nicholas Bownd insisted on the continued necessity of fasting, for “Gods hand is not slaked, but rather stretched out still [Isa. 9:17],” seeing the disease “not to be ceased one whit, nay growing into greater extremities and rage in manie places, from scores to hundreds, & from hundreds to thousands.”53 In a country awash with providentialist thought, any movement (or no movement at all), regularity or irregularity, could be read as the divine will at work.54 Josselin credits increases and decreases alike to the Almighty, altering only the tenor—“God good in or preservacon,” “Lord hold thy hand, proceed not in wrath,” “my soule records thy kindnes with melttings for thy mercy,” “Lord arise & helpe”—as appropriate.55

Yet, Londoners did notice more than the direction of change; readers were no less attuned to the geographical specifics of the fluctuations: whether deaths were inside or outside the city walls, which parishes were clear, and whether trends were general or local.56 Pepys, for example, remained sanguine as mortality rose in June 1665, since the deaths were mostly in the suburbs, while, in the autumn, his gratitude for the disease’s retreat was tempered by the fact “that it encreases at our end of the town still.”57 The basic function of the bills was to localize mortality by parish. James Balmford, rector of Saint Olave’s, Southwark, congratulated his parishioners on their faithful attendance, “notwithstanding there haue died in our parish from the 7. of May [1603] to this day 2640.”58 And because the bills were chronologically specific, citing them rooted a sermon or tract in time, at a particular point within the epidemic’s arc. It was not uncommon to use weekly figures as temporal markers, as when


52 Henry Petowe, The Countrie Ague; or, London Her Vwelcame Home to Her Retired Children (London: printed for Robert Allot, 1625), 3; Josselin, Diary, 149; and Rolfe, “‘It Is No Time Now’,” 575.


54 Wrightson, Ralph Tailor’s Summer, 81.

55 Josselin, Diary, 147–150.


57 Pepys, Diary, 6:142, 225, 251, quotation at 251.

58 James Balmford, A Short Dialogue Concerning the Plagues Infection (London: printed for Richard Boyle, 1603), A4r.
Christopher Ness dated a tract, “Sept. 3 [1665]. When the slain of the Lord in one week, like 7 thousand Arguments, wrested this out of my hand.”

Precise figures slotted into familiar rhetorical patterns: exhortation, intimidation, and consolation. The parallel between the counting of deaths and the counting of sins could continue: “wee haue all mourned and sighed for the great number, that the pestilence hath encreased weekly, aboue three thousande,” observed Godskall, “but what maruaile, seeing there is none of vs, in whom haue not raigned aboue three thousand sinnes?” With one question, the bill’s dreadful arithmetic was mapped onto each reader’s soul, multiplying the city’s sins in a dizzying fractal. Even when quantified, the magnitude of God’s punishments still failed to bring about the proper moral reckoning. Scripture continued to furnish the lexicon for narrating mortality. Celebrating how “from 44.63. dead and buried of the mortality of Plague in one weeke, in that Citie, the Bill fell in few weekes to no lesse then halfe a score; yea to foure onely,” Horne effuses, “We were like them that dreame. . . . Surely, we cannot denie, that our mouth is filled with laughter, and our tongues with songs [Ps. 126:1–2].” Joseph Mead, noting that the decline of the 1625 plague followed the seventh weekly fast, invoked the fall of the walls of Jericho after the seventh blast of the Israelites’ trumpets (Josh. 6).

Functional and rhetorical similarities should not obscure the multiple bases of authority in the use of precise numbers. In the passage from Robert Horne just quoted, it is the bills, not Scripture, that supply the fundamental “fact” of mortality decreasing by a certain amount. Indeed, in-line citations from the bills appear in Horne and others much like citations from the Bible—strings of numbers with italicized references (months replacing the names of books). For that matter, the bills functioned as a second “text,” available, like the Bible, for individual perusal, whether personal copies, those reprinted by the authors, or those posted in public spaces (including many of the venues for major sermons). Though none of Horne’s readers would deny that the Psalm spoke directly to their world, the bills were proximate in a more immediate sense. When Godskall bemoans the disparity in concern over “three thousande” dead and “aboue three thousand sinnes,” he makes no move that Matthew Mead would not make some sixty years later (“were People formerly thus affected, whilst we were bringing this upon our selves?”), but by deploying a more precise number from the bills, the Jacobean preacher adds the force of empirical authority to his harangue. Printing tables of mortality figures, as many authors did, performed a kind of transparency while guiding readers to contemplate the bills’ message in the proper spirit.

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59Christopher Ness, Peace-Offerings and Lamentations (London: printed for the Author, 1666), 29. See also Avaritia Coram Tribunali; or, the Miser Arraign’d at the Bar of Scripture and Reason for His Sinful Neglect of Charity, in This Present Lamentable and Dreadful Visitation of the Plague (London: printed for Elizabeth Calvert, 1666), 3; and Kathleen Miller, The Literary Culture of Plague in Early Modern England (London: Palgrave Macmillan, 2016), 151.

60Godskall, Kings Medicine, F3r.

61Horne, Shield of the Righteous, 23.


64Horne, Caueat, 6, 8.

65E.g., Richard Milton, Londons Miserie, the Countryes Crueltie with Gods Mercie (London: Nicholas Okes, 1625), 30–31; Crouch, Londons Vacation, A3r; and Robert Jenison, Newcastles Call, to Her Neighbour and Sister Townes and Cities throughout the Land, to Take Warning by Her Sins and
Godskall and those like him imbued the bills with a spiritual aura when they cast a mortality figure in scriptural terms. The bills permitted modes of intellectual work with plagues beyond declamation or description. Not confined to impressionistic renderings of an outbreak’s dimensions, commentators could compare one week with another and contemporary epidemics with past visitations, be they biblical or historical.\(^{66}\) They could combine data from different parts of the kingdom, and even from other kingdoms: in the same year, Crouch in London and Robert Jenison in Newcastle were both juxtaposing the two cities’ losses to compare the 1636–1637 outbreak with its predecessors.\(^{67}\) Early modern “politic” thought taught its practitioners to look to history for comparanda, which might be keys to the motives and stratagems not only of kings but of the King of Kings.\(^{68}\) Thus, some held that the ferocity of contemporary plagues exceeded that of their biblical predecessors (and from this drew predictable conclusions about contemporary morals). Riffing on the familiar verse from Psalm 91 (“A thousand may fall at your side, ten thousand at your right hand, but it [pestilence] will not come near you” [Ps. 91:7 NRSV]), William Crashaw laments, “wee haue not only seene a thousand fall at one side of vs, and ten thousand at another, but (alas, alas, that our sinnes should so prouoke our God) even more then ten thousand on the one, and more then twenty thousand on the other.”\(^{69}\) Conversely, the destructiveness of David’s plague—seventy thousand struck down in three days (2 Sam. 24:15; 1 Chron. 21:14)—far surpassed even the worst seventeenth-century epidemics. In 1665, the Lincoln cleric John Featley took as his theme Psalm 119:52, “I remember thy Judgements of Old, O Lord, and receive comfort” when he reviewed the much greater devastation of biblical plagues: 14,700 in Numbers 16, 24,000 in Numbers 25,70,000 in 2 Samuel 24 and 1 Chronicles 21. “[Y]et we fear when One dyethe; we tremble when Ten; we run when Twenty; we are dismayed when an Hundred; we are hopeless, heartless, even almost quite dead already when a Thousand depart.”\(^{70}\) Then again, the following year, surveying the full toll of the Great Plague, the York rector Josiah Hunter could cite the same passages and calculate that England’s deaths “amount to more than the three fore-mentioned summs put together.”\(^{71}\)

The bills delineated the movement of the plague from week to week and over the course of a year, as well as geographically through the city’s parishes. No biblical

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Sorrowes Lest this overflowing scourge of pestilence reach even unto them also (London: printed for John Coleby, 1637), 250–252.


\(^{67}\)Crouch, Londons Vacation, A2r-v; and Jenison, Newcastles Call, 4–6, 177–179.


\(^{69}\)William Crashaw, Londons Lamentation for Her Sinnes and Complaint to the Lord Her God (London: printed for G. Fayerbeard, 1625), A4r-v.

\(^{70}\)John Featley, A Divine Antidote against the Plague; or Mourning Teares, in Soliloquies and Prayers (London: Thomas Mabb, 1665), 48. Brewer performs the same exercise by citing enormous mortality figures for Milan, Mantua, and Parma, to the end that England “acknowledge the Almighties Mercy wonderously extended to us.” Brewer, Dialogue, C2r.

\(^{71}\)Josiah Hunter, The Dreadfulness of the Plague; or, A Sermon Preached in the Parish-Church of St. John the Evangelist, December 6th (York: Stephen Bulkley, 1666), 5.
narrator or classical historian supplied anything like the same level of detail, keyed to
time and place. Decrying the sins of the flesh, Bownd could note that “this pestilence
hath been most hot, in that part of the citie that hath been most polluted this way,
as in Shoreditch, and in the suburbs, and such out-places.”72 In 1626, Horne, the
preacher and polemicist Sampson Price, and royal chaplain Henry King all quoted liber-
ally from recent bills, often juxtaposed with those for 1603, to illustrate the quasi-
miraculous nature of the plague’s sudden abatement.73 (King added that the brevity
of England’s visitations—matters of weeks and months—paled in comparison with
the decades-long pestilences of classical antiquity.)74 Ten years later, Richard Sibbes,
master of St Catharine’s College, Cambridge, took the plague’s swift decline, “that
from above 5000. a weeke, it is come to three persons,” as proof that God alone was
responsible.75 The bills, moreover, provided the benchmarks for making such a judg-
ment: on October 29, 1625, Joseph Mead declared, “God almightie be ever praised
for his mercy,” because there had been a significant decrease in mortality “in a week
that gave no reason to expect it.”76 Brewer discerned further evidence of God’s compas-
sion in the bills’ actuarial patterns: the Lord seemed to spare the elderly (“he gives them
time yet to repent”) and young men (“hee winkes at their faults a while, hoping they will
bee wiser”). Instead, “looke over all your weekly Bils . . . and you shall finde, of Infants
and young Children, twenty for one snatched out of their Cradles, because God will bee
sure to increase his Saints in Heaven.”77 Nicholas Bownd went so far as to extrapolate a
causal explanation from the swift drop in the 1604 figures: that mortality “is fallen from
three thousand and foure hundreth a weeke, to lesse than two hundred” should teach
Londoners “what hee will doe for vs at all times when we pray.”78
Empirical quantification was not the end to which all computation tended; on the
contrary, exact data did much to fuel the rhetorical use of numbers. Indeed, the two
modes, the precise and the rhetorical, are mutually constitutive. Even the lapidary
numbers of Scripture make a claim to measure men, cubits, animals, and so on; con-
versely, even the plainest table of mortality figures makes a certain claim to authority
and veracity. Seventeenth-century writers saw no intrinsic conflict between scriptural
and empirical numbers; each form of authority strengthened the other.79 Moreover,
commentators were not above massaging data for rhetorical advantage. (Rounding
was commonplace in the most utilitarian counts.)80
The reader will have noticed that we have freely mingled voices from all four
epidemics, that both quantitative modes—the rhetorical and the precise—recur

72Nicholas Bownd, Medicines for the Plague: That is, Godly and Fruitfull Sermons Vpon Part of the
Twentieth Psalme, Full of Instructions and Comfort (London: Adam Islip, 1604), 82; and Slack, Impact
of Plague, 26.
73Horne, Caueat, 5–6; Sampson Price, Londons Remembrancer: For the Staying of the Contagious Sicknes
of the Plague by Dawids Memoriall (London: Edward All-de, 1626), 19–20; and Henry King, A Sermon of
Deliuerance Preached at the Spittle on Easter Monday, 1626 (London: Iohn Hauiland, 1626), 72.
74King, Sermon of Deliuerance, 73–74.
75Richard Sibbes, The Riches of Mercie In Two Treatises: 1 Lydia’s Conversion. 2. A Rescue from Death
(London: I. D., 1638), 127.
77Brewer, Dialogue, C2r.
78Bownd, Medicines for the Plague, 252.
and Slack, Invention of Improvement, 26.
80Crashaw, Londons Lamentation, A5v; and Griffiths, “Local Arithmetic,” 119.
from 1603 to 1666, and that the same writers move from one register to the other and back again. It would be difficult to exaggerate the magnitude of the changes in the kingdom from one epidemic to another; above and beyond the political environment, there were epochal transformations in religion (the rise and fall of Laudianism and Cromwellian Puritanism and the hydra-like proliferation of dissenters), natural philosophy (the feud between Galenism and chemical medicine and the emergence of corpuscular theory), and information (the appearance of newspapers). Not dissimilarly, there were vast differences between a sermon like Reynold’s, preached to the nobility in Westminster Abbey, John Squire’s, addressed to the crowd at Paul’s Cross, and Henry Burton’s, delivered to a Dissenting congregation in Saint Matthew Friday Street.81 Each of these developments and distinctions was reflected in plague writing, but the unmoved mover was the publication of the bills. Though the details of formatting might change and different parishes might be included, the availability of precise numbers, standardized for the entire city by a consistent scheme of organization, remained a constant throughout the revolutions, political and intellectual, of the seventeenth century.84

These numbers were reshaping Londoners’ understanding of their city and of epidemic disease.85 Plagues were made the objects of detailed knowledge, knowledge that was geographically, chronologically, and historically specific and that outstripped the Bible in scope and sophistication. And if the bills were not of themselves quite as authoritative as Scripture, they had the advantage of being coeval with the events they described (much as early modern readers valued contemporary histories for their immediacy).86 With such tools, enumeration fostered distinct approaches to the emergency at hand, opportunities that the arithmetically savvy population of the capital was not slow to seize.87

Prominent among these possibilities was the ammunition the bills might supply against political and confessional opponents. In 1625, for example, some were struck by the fact that “the first abatement of the Plague was the week next Following that wherein came out the Proclamation against Papists.”88 The politics of plague could be grimmer still: compare Brewer’s kindly pestilential providence with that of his contemporary, Philip Vincent. Recounting the horrors of the Thirty Years’ War, Vincent lauded the plague God sent to Hanau in 1637, which killed more than 22,000 people. A Protestant city besieged by Catholic armies, “had not God sent that sicknesse to diminish their numbers, they had yeelded the towne through want of victuals.”89 However anodyne the pastoral uses of plague numbers may have seemed thus far,

84Paul Slack, the dean of plague historians, finds a shift in attention over the seventeenth century from the supernatural to the natural causes of plague; I argue only that the bills of mortality that fueled the naturalization of plague were no less capable of sustaining providential interpretations, even if the latter gradually ceded ground. Slack, Impact of Plague, 240, 244–245.
87Jenner “Plague on a Page,” 266.
the stakes rose precipitously as soon as one began to posit causes for God’s punishments or mercies.

IV. Settling Confessional Accounts

Crouch ends his poem on The Belmans call with a warning:

    We look upon the punishment,  
    But not upon the cause ’tis sent.  
    Remove the cause, and you shall see  
    The Plague shall soon removed be.  

But what caused the plague (what provoked God’s wrath) and what caused it to abate (how said wrath might be appeased) were fraught questions. Consider Nicholas Bownd’s use of the bills “to know what hee will doe for vs at all times when we pray,” or, in another treatise, his scriptural-arithmetic argument for penitential fasting. Judges 20 recounts that some forty thousand Israelites were slain in the first two days of the Battle of Gibeah, prompting an expiatory fast (Judg. 20:26). Since the 1603–1604 outbreak had carried off at least forty thousand souls, Bownd reasons, fasting was no less necessary. These unexceptionable recommendations become inflammatory when the very words of prayers come into bitter contention and when fasting turns into a flashpoint of confessional conflict.

Myriad factions claimed “rhetorical ownership of plague,” constructing narratives of causation that aligned divine (dis)pleasure with their own beliefs. The imperative to rid the land of plague was a polemical advantage much to be coveted. The bills of mortality were a text common to all, with the unsurprising result that the same numbers inspired contradictory interpretations. Ted McCormick rightly observes that enumeration “made Providence legible,” but the glossing of the text was eminently arguable. William Sancroft, the dean of Saint Paul’s, bemoaned “the many spiteful and unrighteous Glosses upon the sad Text of our present Calamity (on which every Faction amongst us hath a Revelation, hath an Interpretation).” Two moments illustrate the flexibility and universality of such combative narrations: the debate over fast days in 1636–1637 and the confessional anxieties of the Restoration, felt during the Great Plague by both Anglicans and Quakers.

We should briefly note a more rudimentary politicizing arithmetic with the timing of outbreaks, which might or might not make use of the bills. Some blamed the 1603

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90Crouch, Londons Vacation, B1r.
92Christopher Durston, “‘For the Better Humiliation of the People’: Public Days of Fasting and Thankgiving during the English Revolution,” The Seventeenth Century 7, no. 2 (Fall 1992): 129–130; and Christopher Hill, The English Bible and the Seventeenth-Century Revolution (London: Penguin, 1994), 80. Bownd himself recommended fasting to “stoppe the mouthes of our aduersaries the papists; who falsely boast that all fasting was in their religion.” Bownd, Holy Exercise of Fasting, 36.
95Sancroft, Lex Ignea, 16.
ecclesiastical census for the plague outbreak of that year—had not David’s census been punished with a plague (2 Sam. 24; 1 Chron. 21)?96 Preaching on Easter Monday of 1626, Henry King observed that the plague of 1603 followed the death of Elizabeth I, that of 1625–1626 the death of James I. “I think,” explains the chaplain, “the whole Land sensible of the losse of her DEBORAH, and our late most gratious SALOMON of euer blessed Memorie, . . . shedding Liues in stead of Teares.”97 King’s roystal gloss countered—without ever saying so—suggestions that these coincidences communicated divine displeasure with the ascending monarch.98 In the wake of the Regicide, some radicals went further still: “From the first of King James, to the last of King Charls, England was seldom free from the Plague, but now (God be praised) the Land is free from that judgement, and our London Bils of Mortality have given in of the Plague none, for many weeks together.”99

The first sustained religious controversy involving mortality figures began in late October 1636, when the Church of England issued new orders for penitential fast days. The orders restricted preaching to two one-hour sermons and forbade traveling to different parishes to hear more—to the fury of England’s Puritans.100 Preaching was the medium of godly edification and communal piety. Crucial at any time, the sermon was essential amid God’s chastisements. How could Christians hope to appease the Lord if they neglected the Word of the Lord?

The response was almost immediate. First into print were Newes from Ipswich and The Unbishoping of Timothy and Titus, composed in November 1636 and published clandestinely. Both are likely the work of the splenetic Puritan polemicist William Prynne, at the time a prisoner in the Tower of London. Newes from Ipswich prophesied only failure for the newfangled fasts. “[W]e can never hope to abate any of Gods plagues, or draw down any of his blessings on us by such a fast, and Fastbooke as this, but augment his plagues and judgements more and more.” Indeed, Prynne asserted, that was exactly what had already happened. “[T]he total number dying of the plague, the week before the fast being but 458. & 58. parishes infected, and the very first weeke of the fast 838 (treble the number the second last greatest plagues) and 67 parishes infected.” (For the weekly mortality figures for the last three months of 1636, see table 1.) Several cities formerly unscathed, among them Cambridge, Norwich, and Bath, had been “likewise visited since this fast begun.” This was “clear evidence” of God’s displeasure at “these purgations & the restraint of preaching.” When certain overly cautious Norwich churches had foregone fasting, preaching, and public prayer altogether, plague had visited them almost immediately. From all this Prynne concluded that England could not expect anything but further plagues so long as the oppression of the godly (and their sermonizing) continued.101

The Unbishoping of Timothy and Titus, Prynne’s lengthy attack on episcopal authority, at one point invokes the plague that decimated Rome in the late sixth century, citing the twelfth-century churchman Peter of Blois’s judgment that God was punishing the Italians’ profane pastimes on Sundays and feast days. Prynne confidently warned that

96Slack, Impact of Plague, 26.
97King, Sermon of Deliverance, 58.
98Slack, Impact of Plague, 19; and Graunt, Natural and Political Observations, 40–41.
99Robert Grove, Gleanings; or, A Collection of Some Memorable Passages, Both Antient and Moderne Many in Relation to the Late Warre. (London: R. I., 1651), 12. I am indebted to Paul Slack for this reference.
100Durston, “‘For the Better Humiliation’,” 131–132.
Table 1. Plague mortality, October–December 1636.

<table>
<thead>
<tr>
<th>Week</th>
<th>Total Mortality</th>
<th>Change</th>
<th>Plague Mortality</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Oct.</td>
<td>1405</td>
<td>—</td>
<td>925</td>
<td>—</td>
</tr>
<tr>
<td>13 Oct.</td>
<td>1302</td>
<td>−103</td>
<td>752</td>
<td>−173</td>
</tr>
<tr>
<td>20 Oct.</td>
<td>1002</td>
<td>−300</td>
<td>555</td>
<td>−197</td>
</tr>
<tr>
<td>27 Oct.</td>
<td>900</td>
<td>−102</td>
<td>458</td>
<td>−97</td>
</tr>
<tr>
<td>3 Nov.</td>
<td>1300</td>
<td>400</td>
<td>838</td>
<td>380</td>
</tr>
<tr>
<td>10 Nov.</td>
<td>1104</td>
<td>−196</td>
<td>715</td>
<td>−123</td>
</tr>
<tr>
<td>17 Nov.</td>
<td>950</td>
<td>−154</td>
<td>573</td>
<td>−142</td>
</tr>
<tr>
<td>24 Nov.</td>
<td>857</td>
<td>−93</td>
<td>476</td>
<td>−97</td>
</tr>
<tr>
<td>1 Dec.</td>
<td>614</td>
<td>−243</td>
<td>312</td>
<td>−164</td>
</tr>
<tr>
<td>8 Dec.</td>
<td>459</td>
<td>−155</td>
<td>167</td>
<td>−145</td>
</tr>
<tr>
<td>15 Dec.</td>
<td>385</td>
<td>−74</td>
<td>85</td>
<td>−82</td>
</tr>
<tr>
<td>22 Dec.</td>
<td>316</td>
<td>−69</td>
<td>76</td>
<td>−9</td>
</tr>
<tr>
<td>29 Dec.</td>
<td>383</td>
<td>67</td>
<td>125</td>
<td>49</td>
</tr>
</tbody>
</table>

Source: *Londons Lord have mercy upon us* (London, 1637).

the 1636 outbreak was a judgment on the “selfesame” sins, instantiated in the 1633 reissue of the *Book of Sports* (1617–1618). After all, both visitations began “on Easterweeke.”102 Returning to the subject of preaching, Prynne pointed out that plague struck Christ Church Newgate Street, St Martin-in-the-Fields, and several other London parishes in the very same weeks that they had suppressed evangelical lectures. In those parishes already infected, the cessation of preaching and lecturing had been followed by increases in mortality. Meanwhile, St Antholin’s, which had retained its lectures, remained free of the disease. As a rule, “were [sic] there is *most sinne and wickednesse abounding*, least knowledge and service of God, there is most danger of the plague,” and so it proved, with the disease “ever raging more in the disorderly suburbs of London, where they have usually least and worst preaching, more then in the City, where is better governement, life and preaching.”103

These pamphlets exploit all of the ways in which the bills rendered plague knowable: its fluctuating death tolls, its extent and movement in time and space, and its history. The sheer quantity of numbers permitted an interested observer to find suggestive patterns that rooted a confessional agenda in the empirical warrant of plague mortality and the theological warrant of God’s will. Assuming Prynne’s authorship, the pamphlets’ detailed knowledge of the bills’ finer points may reflect the fact that the Tower was a key node in the distribution of the broadsheets.104 It may also reflect a longstanding interest in numerical reckoning: in 1644, Prynne would be an active member of the Commission of Accounts established by the Long Parliament to review public finances.105

103 Prynne, *Unbishoping of Timothy and Titus*, 155–156.
104 I am grateful to Mark S. R. Jenner for pointing this out.
Prynne was not the only Puritan calling attention to the plague-time errors of the Caroline Church. His collaborator Henry Burton published two sermons he had preached in November 1636, likewise attacking the fast orders. Burton savaged the “guellesd Fast-book” that “I am sure brought us for a hansell [sc., a gift], a double increase of the Plague that weeke, to any weeke since the Plague began: and most terrible weather withall.” Once again, the weekly bills were pressed into service, as Burton demanded, “the very first weeke of the Fast (whereas before the Sicknesse had a weekly decrease, and was likely, through Gods mercy, more and more to decline) what a sudden terrible increase was there, of no lesse than 377. which was double to any weeke increase, since this Sicknesse began?” God had made it clear “that he abhorres such a Fast, as of which his very judgeme [s] Speak, Call you this a Fast?” Conversely, Burton could cite the steep decline in the 1625–1626 plague to argue that “a greater plague than this was suddainly and miraculously remooved” by means of the old fast orders. The regime’s logic threatened to turn the bills of mortality into an anti-Puritan weapon: “if but one Parish in London, or suburbs thereof, or but one house in that parish be infected, the pestilence thus continuing but in the least degree, and the Fast not ceasing, all Wednesday sermons in the whole City, must be suppressed.”

Prynne and Burton were each sentenced to a fine of £5,000, life imprisonment, and the loss of both ears for their intemperate attacks on the church hierarchy and the Stuart monarchy. But the Church of England did not let their criticisms, including of the fast days, go without a public response. The Laudian polemicist and historian Peter Heylyn, “commanded by authority” to refute Burton, flatly declined to meet the foe on his own ground on the subject of plague deaths, instead decrying Burton’s arrogance in claiming to know the intentions of the Almighty. Christopher Dow, Dean of Battle, also tars Burton as presumptuous in mounting an explanation at all, but first he critiques that explanation on its merits. The spike in mortality of October 27 no more proved God’s displeasure with the fast orders than the (initial) victory of the Benjamites at Gibeah (Judg. 20:21–25) vindicated their cause or damned that of the other Israelites. Only then does Dow intone, “Gods judgements are unsearchable, and his ways past finding out [Rom. 11:33]; . . . it is impious presumption peremptorily to assigne any particular reason, either of their first infliction, or their progresse or continuance.” If a cause must be found, the Puritans’ own “murmurings & seditious railings against governours and government” seemed a more likely explanation.

In a May 1637 sermon at Paul’s Cross—as prominent a venue as early modern London afforded—William Watts, the rector of St Alban’s, Wood Street, contended still more directly with the Puritans’ plague arithmetic, evidently still a concern months after the plague had abated. “What if,” muses Watts, “the decrease of the Sicknesse (blessed be God for it) should be retorted on them, now that there are no Sermons”? It was no less plausible to say that the removal of preaching had occasioned the

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107 Burton, For God, and the King, 144, 146–148.

108 Peter Heylyn, A Briefe and Moderate Answer, to the Seditious and Scandalous Challenges of Henry Burton (London: Ric. Hodginsonne, 1637), D1v, 56.

109 Christopher Dow, Innovations Unjustly Charged upon the Present Church and State; or, An Answer to the Most Materiall Passages of a Libellous Pamphlet Made by Mr. Henry Burton, and Intituled An Apologie of an Appeale, &c. (London: M. F., 1637), 146.
subsequent decline in mortality. Whether Watts knew it or not, just such a counter-
constrical of the bills and the fasts had been attempted earlier in the year by John Squire, 
the well-connected vicar of St Leonard’s, Shoreditch. Preaching at St Paul’s on New Year’s Day, Squire took as his text Psalm 50:15, “Call upon me, in the time of trouble; I will heare thee, and thou shalt Praise me.” The vicar insisted that Londoners had 
called upon God through the fasts, and God had heard them—circumscribed preaching 
notwithstanding. His first task was to exonerate the fast orders from responsibility for 
the increase of October 27. To do so, he seized upon the bills’ production schedule: 
since the first fast was on Wednesday, October 26, while the data for the bills was gath-
ered in on Tuesday mornings, “we may conceive, that in those times of mortality, upon 
Tuesday and Wednesday, halfe the number for the weeke following were dead, or, as dead marked for whom we could expect no Fruit from our Fasting.” By choosing a different 
baseline for his arithmetic—the bill published on 3 November, “the first full weeke, that 
followed our first day of Fasting”—Squire could tell a different story about what the bills 
portended. The resulting effort to “compute GODS goodnesse’ is worth quoting at some 
length:

The first weeke, Wee did call upon GOD, in the time of the Plague, by Prayer and 
Fasting: and God did heare us in that time of our trouble. So the Burials decreased 190.
The second weeke, Wee did call upon God in the time of the Plague, by Prayer 
and Fasting: and God did heare us in that time of our trouble? So the Burials decreased, 139.

And so it continued all the way through to “The seventh weeke”: “Wee did call upon 
GOD in the time of the Plague, by Prayer and Fasting. God did heare us in the time 
of our Trouble, and the Burials Decreased likewise, 61.” If the litany is tedious to 
read, it would have made for powerful listening, each iteration hammering home the 
link between prayer, God’s mercy, and mortality. Early modern observers perceived 
the statistical distortions produced by the bills’ production process, quirks that 
might be exploited to challenge an opponent’s interpretation. (Squire concurred with 
Dow in blaming the plague’s increase on “the Seditious Rayling” of the Puritans.)

Leaping forward to 1665, the confessional terrain shifted, but similar strategies of 
interpretation and argument endured, as did the possibility of contradictory interpreta-
tions of a single set of numbers. When plague struck in 1665, “in such a juncture of 
time, when it could not have been more prejudicial to the affairs of the Nation,” the 
usual sense of divine punishment was heightened by the nation’s many traumas 
since the last great outbreak. A brutal civil war, complete with regicide, had been fol-
lowed by political instability. The Restoration had come about due more to the power 
vacuum after Oliver Cromwell’s death and the machinations of George Monck than any

110William Watts, Mortification Apostolical Delivered in a Sermon in Saint Pauls Church, upon 
Summons Received for the Crosse (London: I. L., 1637), 48.
111John Squire, A Thanksgiving for the Decreasing, and Hope of the Removing of the Plague (London: 
114Squire, Thanksgiving for the Decreasing, 27.
115Hunter, Dreadfulness of the Plague, 19.
upsurge of affection for the Stuarts, resulting in a fragile, febrile political settlement. After eleven years of Puritan rule, radical Protestantism remained a force to be reckoned with, to say nothing of the welter of nonconformist sects. Fears of rebellion had been realized as recently as 1663. The plague coincided with a reversal in England’s fortunes in the Second Anglo-Dutch War (1665–1667); as the epidemic was finally subsiding, London was devastated by fire. The leaders of England’s established church could have been forgiven doubts about just how firmly established it was.116

Like Squire some thirty years before, Anglican writers faced an immediate challenge: to account for the plague while avoiding the imputation of blame to the Crown or the Church of England.117 John Bell, clerk to the Company of Parish Clerks, marshalled theology, history, and arithmetic to tackle the problem in his London’s Remembrancer—a compendium of weekly mortality figures for eighteen different years between 1604 and 1665. Bell appended to this multiplicity of numbers six “Observations,” the last on the cause of the plague. The clerk quotes from a plague sermon of 1603 by the Jacobean bishop Lancelot Andrewes, to the familiar effect that plagues are “caused by Gods wrath against Sin.”118 Following the sequence of Andrewes’s exposition, Bell turns to the Bible to identify the sins at issue, taking four examples: Numbers 16 (punishing “the peoples Rebellion” against Moses and Aaron), Numbers 25 (punishing “Fornication”), 2 Samuel 24 and 1 Chronicles 21 (punishing David’s pride), and Isaiah 37:2, Kings 19, and 2 Chronicles 32 (punishing Sennacherib’s blasphemy). “The two first of these were caused by the people, the other two by Kings,” a difference Bell sees reflected in distinct patterns of mortality. Both passages from Numbers state “the number of the people, without particularising what they were that died, whether Men, Women, or Children, or all of them.” By contrast, the biblical text seems to specify that men were struck down by the plagues of David (2 Sam. 24:15; 1 Chron. 21:14) and Sennacherib (2 Chron. 32:21).119 From this Bell concludes “that all the Plagues wherewith it hath pleased God to visit this Nation” can be attributed to the sins of the people, not those of their rulers. As he explains, “I cannot find . . . a Plague within this Nation which spared either Sex or Age.”120 Though this last proposition is meant rhetorically, from 1629 onward, the weekly bills offered Bell proof, supplying separate christening and burial figures for men and women.121

Having cleared Charles II of responsibility with this elegant piece of special pleading, Bell suggested that, as in the days of Moses and Aaron, the Great Plague was a punishment for “the sin of Rebellion”—that is, the Civil War and especially the Regicide. Bell anticipated the objection that the gap of time was improbably long (and, by extension, that a more proximate cause should be sought). “When God will make inquisition for blood [Ps. 9:12], there is none can tell; but when he doth, then he will not fail to remember them that shed it. This When, hath not at any time since the death of our

118John Bell, London’s Remembrancer; or, A True Acount of Every Particular Weeks Christnings and Mortality in All the Years of Pestilence within the Cognizance of the Bills of Mortality, Being xvii Years (London: E. Cotes, 1665), D2r-v, quotation at D2r. See Lancelot Andrewes, XCVI. Sermons, 5th ed. (London: printed for George Sawbridge, 1661), 772–776.
119On gendered language in the early modern Bible, see Pelling, “Far Too Many Women?,” 702.
120Bell, London’s Remembrancer, D2v.
121Pelling, “Far Too Many Women?,” 703.
late Martyred Soveraign, come so near as now." It is no accident that Bell harps on obedience. The need to keep order in the capital was real: political turmoil in London had helped precipitate the Civil War. Particularly once King Charles II decamped to the provinces in July 1665, guiding popular interpretations of the plague was of paramount importance, lest dissenting groups seize the opportunity to make trouble.  

The dissenters were keeping busy during the Great Plague, but less with fomenting rebellion than with preaching, writing, and praying. Like the Anglicans, British Quakers had already had ample cause for disquiet before the plague appeared. A series of statutes—the Quaker Act (14 Cha. II c. 1), the Act of Uniformity (14 Cha. II c. 4), the Conventicle Act (16 Cha. II c. 4), and the Nonconformists Act (17 Cha. II c. 2)—codified the persecution of religious dissenters. Up and down the country, Quaker meetings were disrupted and Friends harassed, arrested, imprisoned, or banished. As they worked to overturn these policies, the bills offered a means of proving, as the itinerant Quaker preacher Thomas Salthouse had it, that "Persecution is the crying sin for which the Land mourns." Addressing an audience that was by definition unfriendly, Quaker authors sought to forge an empirical connection between pestilence and the regime’s religious policies. The Friends’ reliance on the bills is an early modern exemplar of Porter’s claim that quantitative arguments tend to be the weapons of the weak, “a response to conditions of distrust attending the absence of a secure and autonomous community.” It also resonates with the Friends’ privileging of lived experience over academic scriptural exegesis.

It was not by chance, insisted Salthouse, that the plague had first arisen in London, “the great City where Persecution and Banishment for worshipping God did begin.” More specifically, Quakers made much of the fact that one of the first plague fatalities in the city proper (as opposed to the suburban parishes) occurred on Bearbinder Lane. This was in May 1665, less than two months after the first sentences of banishment were handed down against London Friends—one of whom, Edward Brush, had lived on Bearbinder Lane. A couplet by the Quaker poet John Raunce pointed out that the plague first appeared “[n]ear to that place, from whence that good man went, / Whom first ye forc’d away in Banishment.” Richard Crane recounted the persecution of the three men and then explained how God swiftly “visited this City with a rebuke, and that they might take notice of it, within a few doors of that faithful Man’s house E. B.

122 Bell, London’s Remembrancer, D3r.
123 Moote and Moote, Great Plague, 9; and Slack, Impact of Plague, 18–19, 232, 302.
125 Thomas Salthouse, A Brief Discovery of the Cause for which this Land Mourns, and is Afflicted with Several Remedies to Be Applied in Order to the Removal of the Present Visitation (London, 1665), 3.
126 Porter, Trust in Numbers, xi.
128 Salthouse, Brief Discovery, 3.
130 John Raunce, Certain Things as They Were Revealed before They Came to Pass Are Now in Love Published with Some Addition Concerning the Present Times (London: 1665).
a house was shut up . . . of the Plague, and indeed it was the first that I ever heard of in the City.”  

The connection between Quaker protomartyr and plague mortality required that the localized knowledge of the bills be matched by localized knowledge among the Friends. Still a small and tight-knit group, Quakers knew where their co-religionists lived; they maintained their own registers of births, marriages, and burials, in conscious repudiation of Anglican parish record keeping (which tended to keep Friends out of the bills of mortality). Some Quaker pamphlets included lists of the martyrs, a kind of counter-bill of mortality that individualized, rather than aggregated, victims. 

The swift execution of Brush’s sentence added to the significance of the timing: the first convoy of deportees had sailed for Jamaica shortly before the plague struck. Then, Crane asserts, “Weekly-bills began to declare the Judgements of a just God.” Just as the initial, small-scale deportations had been followed by steadily larger groups, “even so hath the judgments of God traced that malicious spirit, first in small numbers and so with greater, as any that will make the observation upon the weekly-bills of Mortality may find it so.”  

Crane describes Friends driven into exile “in the face of the City, in whose streets the bills of Mortality were the day before handed that signified the cutting off by death 3014. and so as they have encreased the numbers for Banishment, the Lord hath increased his Plagues.” When the following week brought further persecutions, Crane took a grim satisfaction in noting that “1016. is increased in the Judgement in this Bill, for no less then 4030. is cut off,” a neat rejoinder to claims that eradicating the Quakers would end the plague. Quaker authors all agreed that the Anglicans had failed to understand the bills’ providential message, and so to resolve the crisis. By citing exact figures and inviting readers to verify their reckoning—“any that will make the observation upon the weekly-bills of mortality may find out”—the Friends at once coopted the bills (an Anglican record of Anglican lives and deaths) and prompted the individual discernment their faith encouraged. 

Another Quaker, Thomas Greene, also informed London, “as thou hast multiplied thy cruelty, so the Lord hath caused his Plague to encrease,” but claimed to have discovered a more exact proportion between the two. The exile of fifty-five Quakers—“near threescore”—on August 4 was met by an increase in mortality to “near three thousand by the weekly bill” (2,817 plague fatalities reported for the week of August 8). One suspects that no matter what the numbers were, Greene would have contrived to fit them together. But that is in some sense the point. The terror of plague, fraught confessional politics, and the significance given to every occurrence by providentialism lent weight to even the most tenuous coincidences. This is not to say that Greene was being disingenuous, merely that the bills’ abundance of numbers keyed to contemporary

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131Richard Crane, God’s Holy Name Magnified, and His Truth Exalted by the Testimony of His Faithful Servants (London, 1665), 3.  
133Crane, God’s Holy Name, 10.  
134Moore, Light in Their Consciences, 190.  
135Crane, God’s Holy Name, 5.  
136Crane, God’s Holy Name, 8.  
137Crane, God’s Holy Name, 14.  
138Cf. Porter, Trust in Numbers, 98.  
139Thomas Greene, A Lamentation Taken up for London That Late Flourishing City (London, 1665), 4; and Besse, Collection of the Sufferings, 1:406.
realities made it easier to find empirical confirmation of the divine message. Establishing the connection was all the more crucial in light of the relatively small numbers of victimized Quakers; where Anglican writers looked to events of national significance, the Friends were claiming that the persecution of a still minor sect had unleashed the greatest epidemic since the Black Death. The disproportion between dozens of Quaker martyrs and tens of thousands of plague victims attests at once to the Friends’ sense of the cosmic injustice done to them and the difficulty of the case they were making.

Plague has always been ripe for rhetorical manipulation, and its seventeenth-century politicization is hardly a discovery. What has not been appreciated is that the bills gave the polemicists of 1636 or 1665 a weapon unavailable to the Marian ideologues who blamed the epidemics of their day on Edward VI’s Protestantism or their Elizabethan successors who attributed the 1563 outbreak to London’s “residual catholicism.”

V. Conclusion

Plague years inspired many (though by no means all) early modern Britons with renewed religious fervor. They also both fed on and fueled the diffusion of numeracy, quantitative reasoning, and access to precise data across British society. The confluence of these two patterns brings the interpenetration of number and theology into high relief. Almost immediately, the bills of mortality became a fixture of London culture, deployed by preachers, poets, playwrights, moralizers, and satirists alike. As indices of the plague’s movement across time, space, and the bodies and parishes of the city, the bills quantified God’s will, permitting that will to be interpreted and contested in numerical terms, often for confessional advantage.

This essay has considered bishops and deans, infamous pamphleteers and iconic diarists, but the most prominent beneficiary of the bills was unquestionably John Graunt, who used them to develop political arithmetic. Graunt pored over mortality figures going back six decades, with special attention to plague years, to uncover “for the first time the significance of the massed life events of women and children as well as men,” including pioneering attempts at calculating an infant mortality rate and constructing life tables. His 1662 book, *Natural and Political Observations*, won him admittance to the Royal Society, a modicum of contemporary fame, and lasting renown as the founder of actuarial mathematics.

Less hallowed and—probably not coincidentally—no longer extant is Graunt’s “something about religion.” That the first political arithmetician should write a “something about religion” was a sign of things to come. Religious questions were...
always to be part of political arithmetic’s remit—indeed, the slogan coined by Graunt’s collaborator William Petty, “number, weight, and measure,” was lifted from Wisdom 11:20.145 Like most early modern scholars, the arithmeticians prided themselves on how their work revealed God’s glory. By the eighteenth century, their ranks were dominated by clergymen.146 One such, William Derham, viewed the bills of mortality as “evidence of God’s transcendental design structuring human life.”147 And it is too infrequently recalled that that numerical evidence was organized (both geographically and bureaucratically) through the parish system, compiled by church officers whose responsibilities also included the maintenance of parish registers and other ecclesiastical records. Since at least the early Tudor period, ecclesiastical infrastructure had doubled as a means of organizing data collection, with the parish serving as a basic unit in a range of quantitative enterprises—registers of births, christenings, and burials; accounts of tithes, rents, and expenditures; poor relief; censuses of paupers, vagrants, and attendees (and absentees) at services. As a result, the parish became a crucial site for developing and teaching methods of record keeping and enumeration and remained so through the eighteenth century.148

It would be too much to claim that Graunt and Petty took their cues from the likes of Nicholas Bownd and William Prynne. But David R. Bellhouse, Stephen J. Greenberg, and James C. Robertson have shown that the political arithmeticians possessed no monopoly on sophisticated readings of the bills of mortality. Londoners were cognizant of the extraordinary resource they received each week.149 More than that, they knew how much was required to maintain it. When, in 1665, the printer E. Cotes published a compilation of the weekly bills for the previous year, he explained that he had struggled to find mortality figures for the 1625 outbreak; his book sought to ensure “[t]hat Posterity may not any more be at such a loss.”150 Men like Bownd and Prynne, in prompting Britons to think about population, disease, time, and geography in numerical terms, and to scan numbers carefully, with an eye to the causal stories they could tell, formed the intellectual milieu for the emergence of political arithmetic and


150London’s Dreadful Visitation; or, A Collection of All the Bills of Mortality for This Present Year Beginning the 20th of December, 1664, and Ending the 19th of December Following (London: E. Cotes, 1665), A2v.
for the immense authority invested in quantification over the eighteenth century. In plague-time, London "became a laboratory in which power and knowledge were not simply exercised but rethought, applied and re-evaluated." The religious writers we have encountered merit a place alongside the familiar heroes of “applied mathematics” in the humanities avant la lettre, like Jean Bodin, Giovanni Botero, and Justus Lipsius, whose efforts were more secular in purport and/or more erudite in audience. Precisely because the Godskulls and the Crashaws framed their arithmetic in religious, popular terms, they reached a much broader public. No less than the city fathers of Gregorio Dati’s Florence who guided their military policy by calculation of Milan’s resources, these clergymen “reasoned pen in hand, and said, as of a sure thing. ‘It can only last so long.’” What links them is not a common methodology, still less a common project, but their exploitation of a common resource—the bills of mortality—for religious purposes. It is this resource that distinguishes “ecclesiastical arithmetic” as something new in the history of empirical theology.

We can see these patterns ramifying in other branches of religious thought, such as the venerable traditions of biblical chronologies and investigations of scriptural demography (whether the earth might be peoples within the revealed timeframe, whether it had room for the bodily resurrection of everyone who ever lived). These inquiries continued apace in the seventeenth century, but began to make use of the demographic data gathered in the bills of mortality and of the methods of political arithmetic. Hard numbers contributed much to physicotheology, “the attempt to demonstrate God’s providence through the empirical study of nature,” as well as to other strands of natural theology and biblical exegesis. The language of mathematics likewise bolstered efforts to logic God into existence: Peter Gunning, a prominent Anglican bishop contemporary with many of our authors, was said to have “proved by Geometrie that there was a Deitie,” while his Roman Catholic coeval Pierre-Daniel Huet dreamed of “proving religion through a methodical sequence of propositions similar to those one finds in geometry.” Mordechai Levy-Eichel has recovered the history of “moral arithmetic,” “the attempt to formalize and mathematize moral thought” through a mathematical style of analysis.

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153 See Jean Bodin, Les six livres de la republique (Paris: Jacques du Puys, 1576), bk. 6, chaps. 1–3; Giovanni Botero, Delle cause della grandezza delle citta libri III (Rome: Appresso Giovanni Martinelli, 1588); and Justus Lipsius, De constantia libri duo, qui alloquium praecipue continent in publicis malis (Antwerp: Christophe Plantin, 1584), 141–144.


158 Quoted in Hunter, Science and Society, 143.


True, the trend was neither universal nor irresistible: deeply symbolic, culturally determined attitudes to number persisted (as they do to this day). Nevertheless, the currency of quantitative reasoning was growing. With each epidemic, the quantity of printed material about plague increased, and the bills were unparalleled in the speed and freedom with which they circulated. By 1665, the weekly numbers were being published in newspapers and newsletters. Graunt’s Observations was a bestseller, seeing multiple printings, imitations, and pirated editions.

The fate of numeracy is of a piece with the social diffusion of other habits of observation and interpretation, among them the “politic” style of political analysis and new modes of reading, listening, and traveling. In England and across Europe, fresh energy was applied to the challenge of gathering, ordering, and disseminating immense troves of data, old and new. “[M]uch that was previously unknown could now be known and known more widely.” The ecclesiastical arithmeticians had no notion of setting their shoulders to the wheel of an epistemic shift; their concerns were avowedly spiritual and political. They sought to move the beleaguered believers of the kingdom, to bring about moral renewal, redoubled devotion, pious obedience, or changes of policy. But in so doing they made use of an unprecedented and unparalleled numerical resource, vindicating both the influence of new instruments in transforming early modern knowledge-making and religion’s place in the story of “scientific” observation.

Spencer J. Weinreich is a PhD candidate in History at Princeton University. A historian of Christianity and the prison, his dissertation is a history of solitary confinement from the late Middle Ages to the nineteenth century. His work has appeared in Early Science and Medicine, Journal of Ecclesiastical History, Social History of Medicine, Journal of the History of Ideas, History Workshop Journal, Renaissance Quarterly, and Punishment & Society, among other publications.

165Slack, “Government and Information,” 61.