LON SHAKE STR

Houses collapsed, sheep ran wild, Westminster Abbey shook and the people trembled in fear of armageddon. **Andrew Robinson** describes what happened when a series of earthquakes rocked London in 1750

Just after 12.30pm on 8 February 1750, Britain's lord chancellor was sitting in Westminster Hall with the Courts of King's Bench and Chancery when the room began to shake. For a moment everyone thought the great edifice was going to collapse on their heads.

In Lincoln's Inn Fields, meanwhile, Newcastle House trembled so much that the Duke of Newcastle sent out his servant to enquire what had happened from a neighbour, the physicist Gowin Knight. The servant found Knight busy investigating the signs of disturbance in his own residence, including a bed that had moved.

In Gray's Inn, a lamp-lighter very nearly fell from his ladder. At Leicester House, home of the Prince of Wales, the foundations were believed to be sinking. Throughout the City and Westminster, people felt their desks lurch, chairs shook, doors slammed, windows rattled and crockery clattered on its shelves. In Leadenhall Street, part of a chimney fell. In Southwark, south of the Thames, a slaughter-house with a hay-loft collapsed.

Little did they know it, but Londoners were being shaken and stirred by the first of several earthquakes that would strike England that year. Although small – with an estimated magnitude of just 2.6, according to today's British Geological Survey – the epicentre of the 8 February quake was shallow and centred beneath the capital, apparently around London Bridge. So the city received a considerable jolt.

This wasn't the first, nor the last, year in which the earth would move under London. In 1580, an earthquake beneath the English Channel collapsed part of the white cliffs at Dover, killed two children in London, rang the great bell in the Palace of Westminster and was referred to in William Shakespeare's *Romeo and Juliet*. In 1692, another thronged the streets of London with confused crowds.

A third quake, with its epicentre at nearby Colchester, rattled the Houses of Parliament in 1884. Puzzled MPs were halted in their tracks, jolted against walls or felt papers and briefcases jerked from their hands. They suspected a Guy Fawkes-style explosion, perhaps set off by the notorious Dynamiters then being prosecuted for their Irish nationalist activities.

But it was 1750, the so-called 'Year of Earthquakes' that triggered a country-wide obsession with seismic events and kick-started the scientific study of the subject. So, strange as it is to report, seismology began not in seismic California or Japan but in stable Britain.

At first, an earthquake was not accepted as an explanation for the 8 February tremor – so improbable did it appear to be. London's 1692 shock was too distant to be remembered. Instead, there were theories about cannon-fire and exploding powder magazines. Then it was said that Isaac Newton, before his death in 1727, had predicted the jolt by calculating that

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Jupiter would approach close to Earth in 1750. Within two or three weeks, Londoners began to forget the strange experience.

Almost exactly four weeks after the first shock, at 5:30am on 8 March, came the second. It was more pronounced, and covered five times the area – a circle with a diameter of 40 miles ,with its centre roughly three miles north of London Bridge. Two houses in Whitechapel collapsed, and several chimneys fell in various parts of London, as did stones from the new towers of Westminster Abbey.

Violent vibration

Horace Walpole, man of letters and politician, was in bed in central London. Three days later, he reported to a friend: "On a sudden I felt my bolster lift up my head; I thought somebody was getting from under my bed, but soon found it was a strong earthquake, that lasted near half a minute, with a violent vibration and great roaring. I rang my bell; my servant came in, frightened out of his senses: in an instant we heard all the windows in the neighbourhood flung up. I got up and found people running into the streets, but saw no mischief done: there has been some; two old houses flung down, several chimneys, and much china-ware."

The president of the Royal Society, antiquarian Martin Folkes, was also in bed. Reporting to the society that very day, he noted that the vibration and noise could not have been that of a passing cart or coach – to which many compared it – because everything was quiet at such an early hour. He remarked that the shock had been felt on the outskirts of London: "I sent a servant out about 7 o'clock, and he met a countryman, who was bringing a load of hay from beyond Highgate, and who was on the other side of the town when the shock happened; he did not, he said, feel it, as he was driving his waggon; but that the people he saw in the town of Highgate were all greatly surprised, saying they had had their houses very much shocked, and that the chairs in some were thrown about in their rooms."

"This frantic terror prevails so much," reported Horace Walpole, "that women **sit outdoors all night wearing earthquake gowns"**

Near Holland House, in west London, the bailiff of Henry Fox, while counting his sheep, observed the dry, solid ground move like a quagmire or quicksand, causing much alarm among the animals and some crows nesting in nearby trees. In *A History of British Earthquakes*, Charles Davison notes that "cats started up, dogs howled, sheep ran about, a horse refused to drink, the water being so much agitated, in several ponds fish leaped out of the water and were seen to dart away in all directions".

A slight tremor occurred on 9 March, and then came a powerful rumour: a third shock, exactly a month after the second one, would

Londoners flee the city during the earthquake panic of April 1750

Quakes that shaped history

Lisbon, 1755

A seismic event that dealt Portugal's empire a grievous blow

The sudden destruction of Lisbon by an earthquake and tsunami in 1755 exerted an influence on 18th-century Europe as far-reaching as the obliteration of Hiroshima and Nagasaki by atomic bombs in the 20th century. This is epitomised by Voltaire's 1759 novel, *Candide*, satirising religious explanations of the disaster and the philosophy of optimism.

By the 19th century, images of a shaking Lisbon were icons of natural disaster comparable with the smothering of Pompeii and Herculaneum by the eruption of Vesuvius. In Portugal, the devastation accelerated the long-term decline of the country in Europe and the colonial world, which had been caused by its over-reliance on gold revenues from its colony Brazil and what many saw as the pernicious influence of Jesuit orthodoxy. Although Lisbon was gradually, and impressively, rebuilt under the near-dictatorship of the marquess of Pombal, the country continued to weaken economically, especially after Brazil gained its independence in 1822.

João Glama's allegorical painting of the Lisbon earthquake, in which 30,000–40,000 people died in the city alone

A crowd congregates around a damaged building in the Mission area of San Francisco in 1906. The Californian city recovered from the earthquake remarkably quickly

swallow up London. The rumour was started by an army trooper who would eventually be despatched to Bedlam, London's lunatic asylum. By 4 April, doomsday had somehow advanced to the very next day, and panic took hold. "This frantic terror prevails so much, that within these three days 730 coaches have been counted passing Hyde Park corner, with whole parties removing into the country," reported a sceptical Walpole. "Several women have made earthquake gowns; that is, warm gowns to sit out of doors all tonight."

Superstitious fears

That Walpole was not exaggerating is confirmed by the 'Historical Chronicle' of April published in the monthly *Gentleman's Magazine*. For 4 April, this reads: "Incredible numbers of people, being under strong apprehensions that London and Westminster would be visited with another and more fatal earthquake… left their houses, and walked in the fields, or lay in boats all night; many people of fashion in the neighbouring villages sat in their coaches till daybreak; others went to a greater distance, so that the roads were never more thronged, and lodgings were hardly to be procured at Windsor; so far, and even to their wits' end, had their superstitious fears, or their guilty conscience, driven them."

Part of the blame must undoubtedly fall on the activities of religious preachers during March. Charles Wesley, a founder of the growing Methodist movement, bluntly sermonised: "God is himself the Author, and sin is the moral cause."

> "In several ponds fish **leaped out of the water and were seen to dart away** in all directions," noted Charles Davison

A leading clergyman, William Whiston, successor to Newton as Lucasian professor of mathematics at Cambridge University, expressed his belief that the end of the world was close at hand, as predicted by 99 signals. No 92 was that there would occur a terrible – but, to good men, a joyful – earthquake, which would destroy one tenth of an eminent city. Given his standing in London society, Whiston's ideas were seriously discussed.

But it was the warnings of the bishop of London, Thomas Sherlock, that attracted the most attention. Sherlock's *A Letter to the Clergy and Inhabitants of London and Westminster… on Occasion of the Late Earthquakes* apparently sold 10,000 copies in two days, was reprinted several times, and is said to have sold more

BRIDGEMAN

San Francisco, 1906

An economic powerhouse rose from the rubble of this natural disaster

The fire that destroyed three-quarters of San Francisco over three days in 1906 was started by an earthquake that disabled the water supply of the city, including its fire hydrants. San Francisco recovered remarkably quickly, largely because the city authorities, local businesses and even the insurance industry treated the disaster as incendiary rather than seismic, so that residents were permitted to claim on their fire insurance and investors were not discouraged from financing reconstruction through fear of future earthquakes. And no attempt was made to introduce anti-seismic emergency and building regulations.

Within a decade, San Francisco was rebuilt and its economy was expanding. In the 1950s, it spawned the nearby industrial area, today known as Silicon Valley, also located on the San Andreas fault. The 1906 San Francisco earthquake became history's leading example of how a great earthquake can trigger the 'creative destruction' of a city.

Caracas, 1812

Did Venezuela's agony lead to a political revolution?

An earthquake in Venezuela in 1812 destroyed much of the country's buildings including those of its capital, Caracas. The damage happened to be worst in the areas controlled by Simón Bolívar's recently proclaimed First Republic of Venezuela and relatively light in areas sympathetic to the colonial ruler, Spain – a fact immediately exploited by the local Catholic authorities, who supported Spain.

By Bolívar's own admission, the earthquake directly precipitated the republic's collapse four months later under attack by Spanish forces. Captured by the Spanish, Bolívar was sent into exile, and settled in Cartagena. There he unexpectedly became the leader of a much wider independence movement than the one he had led in Venezuela. So, indirectly, the 1812 Caracas earthquake may have led to the birth of new South American nations – through Bolívar's liberation of Bolivia, Colombia, Ecuador, Venezuela and Peru from Spanish rule in the 1820s.

The Caracas earthquake – shown in a 20th-century painting by Tito Salas – led to the birth of a new South America

than 100,000 copies in less than six months. Sherlock urged his readers to repent, and to ignore "little philosophers, who see a little, and but very little into natural causes… not considering that God who made all things, never put anything out of his own power".

When London failed to fall, there was a general air of sheepishness in society. Many people simply blanked the earthquakes from their memory, and no attempt was made to protect London's buildings from future shocks.

Natural philosophers, however, remained fascinated. At this time, despite Newton's achievements in understanding the solar system, the science of the Earth had advanced no further than the musings of the ancient Greeks such as Aristotle, who postulated a 'central fire' inside underground caverns, which then collapsed, generating earthquakes. By the year's end, almost 50 articles and letters on the subject had been read before the Royal Society, which were promptly published as an appendix to its *Philosophical Transactions*.

One of the society's fellows was John Michell, a Cambridge astronomer who had a remarkable range of interests, including geology. During the 1750s, Michell examined eyewitness reports from England in 1750 and from the devastating Lisbon earthquake in 1755, and analysed them according to Newtonian mechanics. His important if flawed paper, 'Conjectures Concerning the Cause and Observations upon the Phaenomena of Earthquakes', published in the *Philosophical Transactions* for 1760, correctly concluded that earthquakes were "waves set up by shifting masses of rock miles below the surface" – although his explanation for this shifting relied wrongly on explosions of steam, as underground water encountered underground fires. There were two types of earthquake wave, he said: a "tremulous" vibration within the Earth, followed by an undulation of the Earth's surface – once again coming close to the truth.

Despite being a clergyman, Michell boldly left the divine out of his analysis: the first thinker about earthquakes to do so since the ancient Greeks. Thus, the English 'Year of Earthquakes' led to the first recognisably scientific steps in understanding this influential, but still embarrassingly unpredictable, phenomenon. H

Andrew Robinson's most recent book, *Earth-Shattering Events: Earthquakes, Nations and Civilization*, is published by Thames & Hudson this month

DISCOVER MORE

BOOK

▶ **A History of British Earthquakes** by Charles Davison (CUP, 1924)

TALK

▶ Andrew Robinson will be discussing the **1750 earthquakes** at the London Library on 21 June. Go to *londonlibrary.co.uk* for details

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