

Broad Street Pump Outbreak

By the middle of the 19th century, Soho had become an insanitary place of cow-sheds, animal droppings, slaughterhouses, grease-boiling dens and primitive, decaying sewers. And underneath the floorboards of the overcrowded cellars lurked something even worse -- a fetid sea of cesspits as old as the houses, and many of which had never been drained. It was only a matter of time before this hidden festering time-bomb exploded. It finally did so in the summer of 1854.

When a wave of Asiatic cholera first hit England in late 1831, it was thought to be spread by "miasma in the atmosphere." By the time of the Soho outbreak 23 years later, medical knowledge about the disease had barely changed, though one man, Dr John Snow, a surgeon [actually an anesthesiologist] and pioneer of the science of epidemiology, had recently published a report speculating that it was spread by contaminated water -- an idea with which neither the authorities nor the rest of the medical profession had much truck. Whenever cholera broke out -- which it did four times between 1831 and 1854 -- nothing whatsoever was done to contain it, and it rampaged through the industrial cities, leaving tens of thousands dead in its wake. The year 1853 saw outbreaks in Newcastle and Gateshead as well as in London, where a total of 10,675 people died of the disease. In the 1854 London epidemic the worst-hit areas at first were Southwark and Lambeth. Soho suffered only a few, seemingly isolated, cases in late August. Then, on the night of the 31st, what Dr Snow later called "the most terrible outbreak of cholera which ever occurred in the kingdom" broke out.

It was as violent as it was sudden. During the next three days, 127 people living in or around Broad Street died. Few families, rich or poor, were spared the loss of at least one member. Within a week, three-quarters of the residents had fled from their homes, leaving their shops shuttered, their houses locked and the streets deserted. Only those who could not afford to leave remained there. It was like the Great Plague all over again. By 10 September, the number of fatal attacks had reached 500 and the death rate of the St Anne's, Berwick Street and Golden Square subdivisions of the parish had risen to 12.8 per cent -- more than double that for the rest of London. That it did not rise even higher was thanks only to Dr John Snow.

Snow lived in Frith Street, so his local contacts made him ideally placed to monitor the epidemic which had broken out on his doorstep. His previous researches had convinced him that cholera, which, as he had noted, "always commences with disturbances of the functions of the alimentary canal," was spread by a poison passed from victim to victim through sewage-tainted water; and he had traced a recent outbreak in South London to contaminated water supplied by the Vauxhall Water Company -- a theory that the authorities and the water company itself were, not surprisingly, reluctant to believe. Now he saw his chance to prove his theories once and for all, by linking the Soho outbreak to a single source of polluted water.

From day one he patrolled the district, interviewing the families of the victims. His research led him to a pump on the corner of Broad Street and Cambridge Street, at the epicenter of the epidemic. "I found," he wrote afterwards, "that nearly all the deaths had taken place within a short distance of the pump." In fact, in houses much nearer another pump, there had only been 10 deaths -- and of those, five victims had always drunk the water from the Broad Street pump, and three were schoolchildren who had probably drunk from the pump on their way to school. Dr Snow took a sample of water from the pump, and, on examining it under a microscope, found that it contained "white, flocculent particles." By 7 September, he was convinced that these were the source of infection, and he took his findings to the Board of Guardians of St James's Parish, in whose parish the pump fell. Though they

were reluctant to believe him, they agreed to remove the pump handle as an experiment. When they did so, the spread of cholera dramatically stopped. [actually the outbreak had already lessened for several days]

At the end of September the outbreak was all but over, with the death toll standing at 616 Sohoites. But Snow's theories were yet to be proved. There were several unexplained deaths from cholera that did not at first appear to be linked to the Broad Street pump water -- notably, a widow living in West End, Hampstead, who had died of cholera on 2 September, and her niece, who lived in Islington, who had succumbed with the same symptoms the following day. Since neither of these women had been near Soho for a long time, Dr Snow rode up to Hampstead to interview the widow's son. He discovered from him that the widow had once lived in Broad Street, and that she had liked the taste of the well-water there so much that she had sent her servant down to Soho every day to bring back a large bottle of it for her by cart. The last bottle of water -- which her niece had also drunk from -- had been fetched on 31 August, at the very start of the Soho epidemic.

There were many other factors that led Snow to isolate the cause of the cholera to the Broad Street pump. For instance, of the 530 inmates of the Poland Street workhouse, which was only round the corner, only five people had contracted cholera; but no one from the workhouse drank the pump water, for the building had its own well. Among the 70 workers in a Broad Street brewery, where the men were given an allowance of free beer every day and so never drank water at all, there were no fatalities at all. And an army officer living in St John's Wood had died after dining in Wardour Street, where he too had drunk a glass of water from the Broad Street well. Still no one believed Snow. A report by the Board of Health a few months later dismissed his "suggestions" that "the real cause of whatever was peculiar in the case lay in the general use of one particular well, situate [sic] at Broad Street in the middle of the district, and having (it was imagined) its waters contaminated by the rice-water evacuations of cholera patients. After careful inquiry," the report concluded, "we see no reason to adopt this belief."

So what had caused the cholera outbreak? The Reverend Henry Whitehead, vicar of St Luke's church, Berwick Street, believed that it had been caused by divine intervention, and he undertook his own report on the epidemic in order to prove his point. However, his findings merely confirmed what Snow had claimed, a fact that he was honest enough to own up to. Furthermore, Whitehead helped Snow to isolate a single probable cause of the whole infection: just before the Soho epidemic had occurred, a child living at number 40 Broad Street had been taken ill with cholera symptoms, and its nappies had been steeped in water which was subsequently tipped into a leaking cesspool situated only three feet from the Broad Street well.

Whitehead's findings were published in *The Builder* a year later, along with a report on living conditions in Soho, undertaken by the magazine itself. They found that no improvements at all had been made during the intervening year. "Even in Broad-street it would appear that little has since been done... In St Anne's-Place, and St Anne's-Court, the open cesspools are still to be seen; in the court, so far as we could learn, no change has been made; so that here, in spite of the late numerous deaths, we have all the materials for a fresh epidemic... In some [houses] the water-butts were in deep cellars, close to the undrained cesspool... The overcrowding appears to increase..." *The Builder* went on to recommend "the immediate abandonment and clearing away of all cesspools -- not the disguise of them, but their complete removal." Nothing much was done about it. Soho was to remain a dangerous place for some time to come.

Source: Summers, Judith. *Soho -- A History of London's Most Colourful Neighborhood*, Bloomsbury, London, 1989, pp. 113-117.