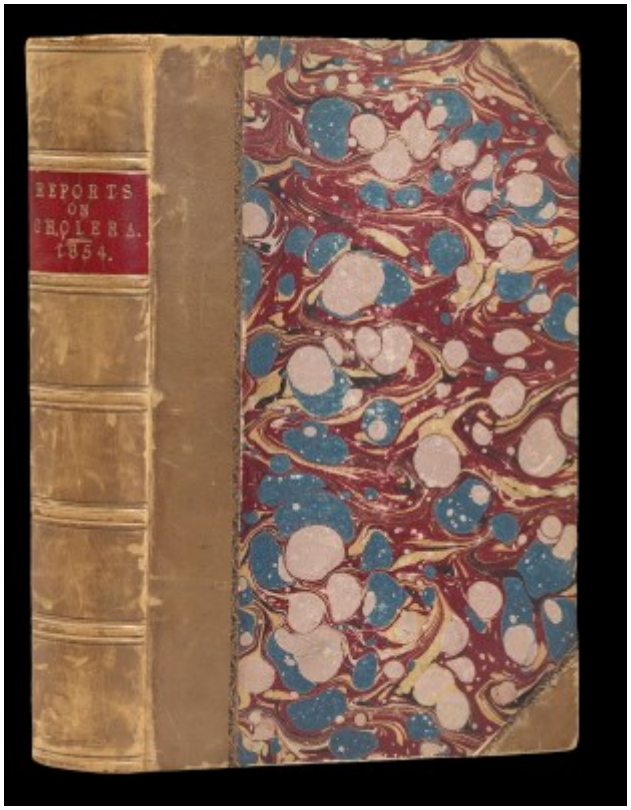

Appendix. Folio. viii, 352pp. Folding diagram at and ; folding part coloured graph at ; 5 folding charts at ; coloured plates at , 124, 126 (2), 128, 220, 222, 228, 230, 232 (2), 234, 236, 238 (3), 240 (3), 242, 244, 246 (2), 248, 250, 252, 260 (2), 272 (2), 290, 298; map at ; pp. 323-352 folding tables, original half-calf over red and blue marbled paper boards, spine with red morocco label, lettered in gilt, rubbed.

“ALL SMELL IS DISEASE”

Appendix to Report of the Committee for the Scientific Inquiries in relation to the Cholera-Epidemic of 1854. General Board of Health. Medical Council. Report. Presented to both Houses of Parliament by Her Majesty’s Command.

Author
THE GENERAL BOARD OF HEALTH

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Appendix. Folio. viii, 352pp. Folding diagram at p.14 and p.88; folding part coloured graph at p.106; 5 folding charts at p.176; coloured plates at p.122, 124, 126 (2), 128, 220, 222, 228, 230, 232 (2), 234, 236, 238 (3), 240 (3), 242, 244, 246 (2), 248, 250, 252, 260 (2), 272 (2), 290, 298; map at p.332; pp. 323-352 folding tables, original half-calf over red and blue marbled paper boards, spine with red morocco label, lettered in gilt, rubbed.

Dimensions

Notes

Cholera is a contagious disease caused by the bacterium vibrio cholerae. The bacteria lives in warm, salty stagnant waters, and is contracted when an individual ingests water or food contaminated with the bacteria. In the most severe strains the bacteria multiplies dramatically within the individuals gut, causing the intestine to release increasing amounts of water, leading to severe diarrhoea, vomiting and rapid loss of the fluids and can, if untreated, lead to death within 24 hours. The majority of epidemics are caused when the faecal matter of an infected individual contaminates the water supply. It has been estimated that, since the beginning of the nineteenth century, cholera has been responsible for some 50 million deaths, and although relatively simple rehydration treatments are now readily available, according to the World Health Organisation some 120,000 people a year still die from the disease.

The Broad Street outbreak

The London epidemic of 1853-54, was part of the larger 1846-1860 cholera pandemic – the third such pandemic to occur since 1817 – and the second time that the disease had spread to British shores. The Broad Street outbreak, which was to be traced by Dr John Snow to a contaminated water pump outside number 40 Broad Street, was a particularly virulent strain, and would result in the deaths of 500 people, over a period of just ten days; by the end of the outbreak a total of 619 people would have succumb to cholera, leading the Observer newspaper to note that, “Such mortality in so short a time is almost unparalleled in this country”.

The Broad Street outbreak led to the publication of two reports and a monograph: The General Board of Health (BoH), The Report… on the Cholera Epidemic of 1854 (1855); The Cholera Inquiry Committee (1855), set up by the Parish of St James’s; and Doctor John Snow, On the Mode and Communication of Cholera (2nd edition, 1855). Although Snow’s work is now seen as one of the foundation stones of epidemiology, its argument – that cholera as a waterborne disease – was not widely held by the Victorian medical establishment, with prominent people such as Edwin Chadwick, head of the first General Board of Health, expounding the view that the cholera was an airborne disease, bought about by foul odours caused by unsanitary conditions. Although Snow was to prove, that the airborne hypothesis was erroneous, the ‘miasmatic’ theory, with its instance that “all smell is disease”, would be the catalyst for many of the great municipal sanitary improvements – such as Bazalgette’s great sewer – carried out during the Victorian era.

Formation of the General Board of Health

In 1848, Parliament passed the Public Health Act, which instituted the Board of Health for a period of five years, with powers to sanction expenditure for sanitary improvements requested by local government, and in the event of an epidemic to provide guidance to the government’s response. The board was headed by, and was the brainchild of, Edwin Chadwick, whose 1842 General report on the Sanitary condition of the Labouring Population of Great Britain, has been called the, “fundamental document on modern public health” (Rosen).

“The creation of the Board of Health was a high point of the great Victorian enterprise of sanitary reform, whose central idea was that environmental circumstances – particularly pollution of the air and water, defective sanitation, dampness, filth and overcrowding – were causes of disease, particularly epidemic disease, and these diseases often killed the wage earners, left poor working families impoverished, pushed widows and orphans into workhouses, and undermined the moral fibre of the working classes” (Paneth).

Although the Board was successful in enacting a great many sanitary improvements over the next five years, Chadwick's brusque and arrogant manner, led to the board's charter not being renewed by Parliament, and on 31st July 1854, the members of the board were dismissed. Unfortunately for the government the disbanding of the board coincided with a sharp increase in the number of cholera cases in London from 1 a week to 133 a week during the month of July. On Augsut 1st, Parliament instituted another but much weaker Board of Health: its charter had to be renewed annually, and consisted of only one board member, which had to be filled by a sitting Member of Parliament. The MP chosen was Sir Benjamin Hall, who by dint of not being Chadwick was deemed eminently qualified for the job; by the time he assumed his role, on the 12th August, cases of cholera in London had increased to 644 a week.

The Board of Health's Cholera Investigation

On the 13th August Hall met with his advisory council, which he had rapidly put together, the council consisted of some of the most eminent medical practitioners of the day, including: John Ayrton Paris and James Alderson, president and treasurer, respectively, of the Royal College of Physicians; William Lawrence, vice-president of the Royal College of Surgeons; James Clark, physician ordinary to the Queen; Benjamin Babington, founder and president of the London Epidemiological Society; and William Farr, compiler of the Weekly Returns – which included among other statistics, deaths and cause of death – a resource that greatly aided Snow in his research.

The council divided itself into three sub committees: Committee for Scientific Inquiries (CSI), which would be responsible for the majority of the cholera report; the Committee for Treatments; and the Committee for Foreign Correspondence.

The work of the CSI started on the 5th September 1854, when Drs Fraser, Hughes, and Ludlow, began house to house investigations of the Golden Square area, around the same time that Snow was also commencing his investigations; and three days before St James's parish would remove the handle from the water pump on Board Street, on the advice of Snow.

The report details some 800 houses, listing their inhabitants, any deaths from cholera, and the sanitary state of the premises, which was often terrible, and included the condition of any cesspools, "bad-smells from water-closets", and untrapped drains.

The house to house investigations were supplemented by the scientific report. Hall employed three men to carry out investigations for the committee: James Glaisher, superintendent of the magnetic and meteorological department at Greenwich and a founder of the British Meteorological Society; Richard Dundas Thomson, professor of chemistry at St. Thomas Hospital; and Arthur Hill Hassall, author of the first textbook of microscopic anatomy in English (1846) and famed for his revelations, through microscopy, of the extraordinarily frequent contamination of food and water in London by adulterants and animalcules (Paneth).

Although Chadwick was no longer in charge, a brief look at the committee's make up clearly shows that the sanitarians still dominated. Their belief that the atmosphere was critical in the spread of disease is demonstrated by the fact that almost a third of the scientific report, contains the investigations of meteorologist James Glashier. Glashier's principle chart tracks deaths by cholera and diarrhoea, for the year 1854, against daily air pressure, wind speed and direction, temperature, temperature of the Thames, as well as rainfall and cloud cover. The committee also extracted air from cholera and empty wards at St Thomas Hospital, to check for airborne particles.

It would be wrong, however, to characterises the report as exclusive obsessed with miasmas, as both Hassall and Thomson carried out extensive testing of London's water, which at the time was

provided by several different water companies. Both Thomson's chemical analysis, and Hassall's microscopic findings (each of which are beautifully illustrated in the report), came to the same conclusion as John Snow, with Lambeth water the purest, and Southwark and Vauxhall – which contains many a creature you would not want to meet on a dark night – and was drawn direct from the Thames, among the most contaminated. Hassal would go on to examine the rice water stools of cholera victims, noting that there were numerous vibriones (what we now know are vibrio cholerae – the bacteria that causes cholera). Although he postulates that these might have come into the body through the ingestion of contaminated water, he sees them as a by-product of the illness, rather than the cause.

The Map

The map that accompanies the report is a great deal larger, and includes much more information, than the map that Snow produced for his monograph. Based on the map produced by the Metropolitan Commission of Sewers (which was also published in the report carried out by the St James's Parish) it covers a much greater area, and marks not only cholera deaths and pump locations but also: house numbers, new and old sewers, sewer grates trapped and untrapped, side entrances, and ventilators. The map has been updated with the number of cholera deaths in the area tracing people who were hospitalised, and those that worked or visited the area. To the upper left are two shaded areas. The first a circle which bisects Little Marlborough Street, titled: 'The erroneously supposed position of the ancient plague pit shewn in the map of the Commissioners of Sewers', and the second a rectangle, titled: 'Extent of Craven Estate, corresponding with site of pest-field, three acres two chains', which covers much of Marshall Street, and houses either side, and ends just west of the water pump on Board Street – the epicentre of the outbreak. Both sites mark supposed burial pits, dug during the Great Plague of 1665. Many had argued that the disturbance of the pits, when new sewers where dug in the 1840s and 1850s, was responsible for the severity of the Golden Square outbreak. However, this theory is conclusively dismissed in the report, stating that no burial remains were encountered when the sewers were dug.

A comparison of the maps that accompany Snow's monogram and the BoH's report, clearly illustrates the authors' varying approach to the epidemic. Snow's map is narrowly focused on the centre of the outbreak, and marks only the individual deaths (marked by black coffin like lines to each house), together with the position of the water pumps; Snow clearly wanting the viewer to draw the causal link between the Broad Street pump, and its proximity to a large number of cholera deaths. The BoH's map on the other hand, which shows a much great area and contains much more information (sewers, drains, plague pits etc.), Snow's correlation is lost under a mass of miasmic information.

Conclusion to the report

The sanitarian's that led the report were all anti-contagionist (i.e. that disease could not be spread person to person) believing epidemics where due to airborne transmission, the foul odours emanating from rotting organic matter such as raw sewage, caused a polluting 'miasma' which acted as a catalyst, and depending on the atmospheric conditions, would unleash deadly diseases such as cholera and typhoid on the unsuspecting populace. The report's finds reinforced their belief in the miasma hypothesis, and strongly rejected Snow's waterborne theories:

"In explanation of the remarkable intensity of this outbreak within the very define limits, it has been suggested by Dr Snow, that the real cause of whatever was particular in the case lay in the use of one particular well, situate at Board Street in the middle of the district, and having (it was imagined) its waters contaminated with the rice-water evacuation of cholera patients. After careful inquiry, we see no reason to adopt this belief. We do not find it established that the water was contaminated in

the manner alleged; nor is it there before us any sufficient evidence to show whether inhabitants of the district, drinking from that well, suffered in proportion more than other inhabitants of the district who drank from other sources."

When the report does countenance the idea of waterborne transmission – especially in the reports of Hassall and Thomson – the authors see the difference of Snow's and their own hypothesis as some what trivial. Both agree that water polluted with raw sewage is hazardous to public health, and should be immediately remedied, whether or not it transmitted cholera was rather by the by. Unfortunately, in practical terms, this difference of opinion mattered a great deal, for example cholera patients were never isolated, and lime continued to be used to rid infected streets of foul smells and odours, at considerable cost.

In hindsight the report can be seen as too large and unwieldy, the miasma theory at its heart "predicted to much and therefor was difficult to contradict or falsify"(Paneth). In contrast Snow's economy of purpose (his monograph at just 162 pages is almost a third the length of the BoH report) shines through. "The strength of Snow's hypothesis lies in its exclusion of other alternatives; by insisting on the singular mode of transmission [i.e. water], Snow was able to imagine circumstances that would invalidate his hypothesis" (Paneth). For example the exclusion of both the Broad Street Brewery works, and the local Poor House from the cholera epidemic, led Snow to investigate their water supply – both drew them from independent sources; as did the death of a widow from cholera in faraway Hampstead – who was so fond of the Broad Street water that she had her nephews send her bottles of it.

Snow is keen to challenge his hypothesis where ever possible, alas the BoH report contains no such challenges, with the authors suffering from a large degree of confirmation bias.

Although the BoH report is now largely forgotten, and its hypothesis discredited, it was favourably received at the time, and would be the catalyst for the creation of The Metropolitan Board of Works – arguably the body whose policies would make the greatest impact on the health and wellbeing of Londoners in the nineteenth century. Setup by the head of the BoH, Joseph Hall, in 1855, it would be responsible for, among other things, the clearing of slums, the creation of London's numerous parks, and Bazalgette's great sewerage works.

Postscript

Snow would not live to see his theory vindicated, he suffered a stroke in his London office on 10th June 1858, and died six days later, he was only 45 years old. It would not be until a further outbreak of the disease in Bromley by Bow, in 1866, that William Farr, a leading sanitarian and compiler of the Weekly Returns, would realise the validity of his claims, and the medical establishment would begin to come round to his theory. The bacteria which caused the disease vibrio cholerae, was first discovered by the Italian anatomist Filippo Pacini in 1854, however, due to the prevailing miasma hypothesis, his findings (just like Snow's) were ignored and would only gain acceptance when the German scientist Robert Koch, who had also discovered the tuberculosis bacteria, published his findings in 1884.

Rarity

We are unaware of another example of the report being offered for sale in the last 50 years.

Bibliography

Provenance

Price: £10000

Inventory reference: 17668

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