AR Animal room for experimental subjects
CL Chemistry laboratory
DR Dining room
F Foyer
HQ Housekeeper’s quarters
K Kitchen
MB Master’s bedroom
MR Morning room
P Parlor
Sc Scullery
St Study
Su Surgery
WC Water closet
Prologue

He lay on the floor, beside his chair and partly under the writing table, attempting in vain to regain his seat. Right arm and leg moved jerkily. Left arm and leg were completely limp. He turned his face toward her as she entered the room. His mouth was strangely drawn to the side and drooping.

Yet his speech was surprisingly distinct. It'll surely pass, he said. There's no loss of feel-
Prologue

ing in the limp side, so the paralysis must be temporary. Should resolve on its own, as before. But admittedly, never experienced anything this severe. No! No! Absolutely no reason to send for Dr. Budd. Yes, he lives close by, but it's unnecessary. Just need assistance onto the couch. And kindly fetch the anesthetist's kit from the surgery. Must dull these searing chest and stomach pains, somehow.

Weatherburn went back downstairs to the surgery and returned with a black case. She had observed him use various apparatus on occasion during self-experimentation, so she felt confident to assisting according to his directions.

He asked for ether. The flavor was more to his liking than chloroform, the sensations more pleasurable, and the dosage was easier to control. Use the portable ether inhaler — that shiny, black metal box the size of a thick book at the bottom of the kit.

It seemed surprisingly light until she realized it was made of tin covered in japan varnish. She placed the box on an end table near his head, opened the left side and extracted an elastic tube about three feet long with an attached face-piece and a thin brass tube. She poured water into the now empty left chamber until it was three-quarters full. On the top of the apparatus, at the far right, was a small opening; Weatherburn carefully poured two ounces of sulphuric ether into the chamber below, then fitted a brass tube into the opening. The elastic tube with the face-piece screwed onto an opening in the center of the ether chamber. She looked up, expectantly.

He had regained full control of his right side. He asked for the face-piece, used his good hand to position it over mouth and nostrils, compressed the leaden edges for a snug fit, completely opened the expiratory valve with a deft finger-flip, closed his eyes, and began inhaling. Every half-minute he gave the valve a nudge until it was nearly closed, all the while inhaling until fading consciousness signalled him to pull away the face-piece. He waited until the effect had almost worn off, then resumed inhalations.

Weatherburn remained at hand, occasionally refreshing the apparatus with ether and water.

The ether had the desired immediate an-
Prologue

algesic effects, but his stomach discomfort worsened as the day wore on. The evening seemed endless, followed by an interminable, sleepless night, he on the sofa, she in a chair nearby.

At first light Friday morning, he vomited what must have been yesterday morning’s breakfast, for he had eaten nothing since. Weatherburn observed streaks of blood in the bowl. Time to send for Dr. Budd.

* * *

John Snow’s personal physician was puzzled. The patient presented complete muscular paralysis on the left side. Yet a few pricks with a dull hat pin confirmed Snow’s assertion that sensation was normal on the affected side. A strange form of partial paralysis. Still tenderness in the epigastrium after twenty hours. No vomiting until this morning, but now persistent with some hæmate-mesis — the sign that had prompted the housekeeper to contact him.

George Budd needed more information. Still passing water? Weatherburn extracted a graduated urinal from under the couch. It was the volume Budd expected from someone who had had nothing to eat and little to drink for many hours. He carried the urinal to one of the south-west facing windows, and lifted it to the light. Clear, albeit on the dark side; probably due to a limited fluid intake. No grossly observable hæmaturia. He returned to the couch and gently probed both of Snow’s legs with his fingers; no evidence of dropsical swelling. Encouraging. His first hunch, renal failure, was no longer a certainty. Nonetheless, Budd poured a few ounces of urine from the urinal into a tube, pushed in a cork stopper, and placed the sample inside his waistcoat. He would test for albuminuria later.

He chatted a few moments with his patient. The symptoms were very peculiar. Baffling, frankly. Another opinion would be helpful. Snow agreed.

Charles Murchison, M. D. of Upper Seymour Street, Portman Square met George Budd at his surgery in Dover Street, Piccadilly and the two walked the half-mile to 18 Sackville Street. Snow was still on the couch, paler than before, but his pulse and breathing remained normal. The atypical paralysis was unchanged. Snow was unable to move anything on the left side, yet sensation remained intact everywhere.

Murchison began by taking a brief patient history, focusing initially on any similarities to current symptoms. Snow admitted to occasional vomiting the last few years, sometimes with hæmatemesis. They were mere annoyances, he insisted, always minor and of short duration, and there had been none of late. Just some numbness in the hands and feet, episodically, in the last half year. A touch of vertigo last December which vanished after twenty-four hours couch-rest.

Had severe headaches three weeks ago; simple
neuralgia, probably, since it was self-treated with good effect.

Murchison shifted ground to complaints of longer standing.

Snow recalled a couple minor indispositions. Had a touch of *phthisis pulmonalis* about fifteen years ago, contracted whilst attending at the chest hospital in Brompton; it cleared up in short order after lengthening the daily walk regimen. Kidney stones one summer, also about fifteen years ago; sorted by a rest cure in the country and dietary changes.

What changes?

Some beef now and then. A glass of port or red wine in the evening. No re-occurrence of the complaint since. Been in fine fettle, really, in the days leading up to yesterday’s incident.

Budd and Murchison had retreated to the parlor to discuss their findings. They quickly ruled out phthisis. The attack was too sudden, and Snow’s constitution wasn’t consumptive in the least. Soon settled on apoplexy, but kind, cause, and severity were uncertain. His symptomatology flummoxed them. Their conversation turned to a diagnostic differential.

Could be *Hæmorrhagie cerebrale*. Loss of motion suggests pressure on the motor control part of the brain from sudden extravasation of blood serum into the brain.

The pale countenance fits. But in typical serous effusion into the brain the pulse is feeble and his is normal.

OK, but something is impinging on the motor area controlling his left side. Could be turgescent blood vessels?

Perhaps. The pulse is definitely strong, but then his features should be flushed, and there’s no sign of that.

Still think it’s some form of hæmorrhaghic apoplexy.

But there is no diminution of sensation, his reasoning is clear as a bell, and he’s never lost consciousness, even momentarily. Snow’s dodgy kidney history can’t be ignored. Could be cerebral complications from *Apoplexia renalis*.

If so, would have expected evidence of dropsy by now, but that would be the best outcome. Cerebral apoplexy is generally fatal in people over the age of thirty-five.

Self-reporting is all well and good, but Snow may be playing this hand too close to the vest. He’s convinced himself it’s something minor. Need to talk with the housekeeper in private.

Weatherburn joined the physicians in the parlor. Was there anything she could tell them that had not come out upstairs?

Yes, the morning of the attack. Dr. Snow seemed unsteady on his feet when descending the stairs from his bedroom. Had said he felt a mite giddy, and then proceeded to lie on the couch. Several minutes later, he arose, and walked around the morning room a few times.
To what effect? Steadily or unsteadily?
Seemed normal enough. Said he was hungry. Walked into the adjoining dining room, ate his usual breakfast, then returned to the morning room.

The couch?
No, to his writing desk.
When did the attack occur?
Shortly thereafter. Heard him fall while downstairs in the scullery, and was with him less than a minute thereafter.

Did he have convulsions?
No. But jerky motions on the right side at first.

What about the left side?
Couldn’t move his left arm or leg a’tall.

And, come to think, his mouth was crooked, drooping-like.

The left side of his mouth?
Hmm! Yes, must ha’ been.

Did he ever lose consciousness?
Not that Weatherburn had noticed.

Budd and Murchison had a few more questions for the housekeeper.

Did she remember any problems with his health prior to yesterday morning, other than what Dr. Snow had already told them?

Yes, he neglected to mention that, five years ago, he was too ill that to sit up or write for many weeks. Nothing else from long ago comes to mind.

Anything within the previous year he failed to mention?

He spent much of last summer in the countryside, which was very unusual.

Anything else?

Not that she could think of.

The housekeeper’s comments were suggestive. Thursday’s episode may have been the latest in a series of apoplectic attacks, albeit all transient and minor until this one. For Snow’s current condition struck them as more serious than anything he or the housekeeper had described happening in the past.

On the other hand, Snow might be correct: nature would restore his system, as it had done before, with little or no medical assistance. He was an excellent clinician, but this time he was the patient. Going for him was the fact that he was only forty-five and in good health, all things considered. Since he was a man of temperate tastes and habits, there was nothing for them to recommend at this stage but patience, rest, and hope.

* * *

Weatherburn noticed definite signs of improvement during the weekend.

Snow’s vomiting tapered off Saturday morning; and when it did occur, there was no blood in the basin. He continued to be discom-
forted by frequent retching, however. Persistent hiccups, but he didn’t seem overly bothered by them.

The fine weather of late continued throughout the day, with outdoor temperatures in the upper 60s, as much as ten degrees warmer in the morning room when the afternoon sun came through the three large windows at the front of the house. Snow lay there on the couch the entire day, during the night as well.

Dr. Budd stopped by on Sunday morning. He was concerned about potential albuminuria. When he had heated a teaspoon-full of Snow’s urine from Friday’s sample, it turned opaque just short of the boiling point. So Budd immediately checked Snow’s ankles and fingers for signs of swelling, but found none. Good; still no indications of dropsy. He now wondered if this stroke, too, would turn out to be a minor one.

Snow’s spirits soared over the next twenty-four hours. He fantasized about resuming his anaesthetic practice within a fortnight. Vomiting and hiccups had ceased by Monday morning. Snow asked Weatherburn to make inquires for someone to jerry-rig him a portable writing desk; James Ball’s shop in Bryanston square could certainly do it. Just a temporary measure until full motion is regained. Must finish inhalation anesthesia by the end of the month. John Churchill is expecting the last few chapters.

Weatherburn permitted herself to feel hopeful for the first time since Thursday morning. But then she caught herself. Was he just lying there on the couch, building castles in the air?

* * *

Snow crashed a few hours later. Weatherburn sent for Dr. Budd as soon as she saw a turn for the worse. He took Snow’s pulse; it was racing, but still strong. His breathing was rapid and shallow. Dr. Murchison came as well. There was nothing they could do for him.

The two physicians returned on Tuesday. The weather had turned unseasonably warm; already ninety degrees in the shade, and well over 100 degrees in the direct sunlight bathing the front of 18 Sackville Street. Snow’s face, hands, and feet were now swollen and crimson. While the heat and south-easterly winds carrying sewage odors from the River Thames certainly added to Snow’s discomfort, they had not caused this change in his condition and the livid complexion. The latter was the first unmistakeable sign of serous effusion – plasma was leaking from Snow’s capillaries. His pulse had turned feeble. His mind was wandering. Time had resolved medical uncertainty, as they knew it would, but not in the way they had hoped.

When should he be told?

Not today. Snow’s still mumbling about a full recovery. Pricking that bubble would be cruel and unnecessary.
But the two physicians decided to inform the housekeeper that her master was dying. It’s now evident that Thursday morning’s attack was a severe stroke. Best guess is that partial renal failure brought it on, based on the traces of albumin detected in his urine. Dr. Snow’s kidneys did rally for a time, which explains the turn for the better, but they must be too damaged to make a proper job of it for his life to continue. Ever so sorry.

In that case, there were things she must now do. Would one of them kindly walk home via Piccadilly to the round-about at Regent’s Street, where the messengers wait for a hire. Ask one of them to come immediately to the house. She would have a message ready to be carried to a telegraph clerk at the Birmingham Railway Depot in Euston Square.

The housekeeper accompanied the two physicians to the front door, then walked through the parlor into Dr. Snow’s surgery. She located the necessary form, and began writing a telegram:

Reverend Thomas Snow, Greetland Halifax, Yorkshire.

* * *

Jane Weatherburn returned to the morning room, where Snow was sleeping on the couch. She looked fondly at the man she had served for twenty years, the last six at Sackville Street. Just the two of them. She was housekeeper in name, majordomo in actuality.

She would miss him immensely, but the future gave her no worry. Dr Snow had shown her the will he had prepared the year before. In the event of his death, his executors were instructed to purchase bonds of sufficient value to provide her an annual annuity of £20 for the rest of her life. A modest amount to put aside for her old age if she continued in service elsewhere in London, sufficient for her needs if she decided to retire to Berwick.

She would be required to stay on here for awhile in any event. There were Snow’s books and papers to sort. Most immediately, she must begin readying rooms for family members arriving from Yorkshire for the funeral.

* * *

Reverend Snow boarded a train on the London and North Western Railway, bound for London, Euston Square. Would he make it in time to say good-bye to his oldest brother?

* * *

Snow remained conscious, albeit with delirious episodes, throughout Tuesday afternoon and well into the evening. Heat-lightning during the night, but no rain to freshen the city.

On Wednesday morning, the 16th of
June, Drs. Budd and Murchison told him that his condition was extremely grave. They did not think he would survive the day. Snow listened without comment. He then expressed his appreciation for their diligent attendance the last few days. Hopefully, they would not think it churlish or ungenerous of him to have Dr. Todd visit and render a third opinion.

But it was too late for any more of that. The death rattle began an hour before noon. If Bentley Todd, M.D., with premises near Grosvenor Square a half mile to the west, was sent for and actually came to 18 Sackville Street, he would have found Snow already in a coma.

John Snow died at 3:00 o’clock. Thomas Snow had arrived in time to be at the bedside when he drew his last breath.

Three days later, the autopsist transferred John Snow’s body to an undertaker at the Economic Funeral Company’s Baker Street location, north of Portman Square, where someone — perhaps the Reverend Snow — paid £5, 17 shillings, and 6 pence for a burial plot and interment. By then, obituary notices had appeared in the morning newspapers and two London medical journals. Also on Saturday, Thomas Snow walked several blocks south-west from his brother’s house to 8 Bury Street, where he found George Keith, Registrar for Births and Deaths in the St. James’s Square sub-district. Keith certified Snow’s death upon receipt of the autopsist’s post mortem report.

John Snow was interred at noon on Monday, the 21st of June, in the city cemetery situated between the Old Brompton and Fulham Roads, southwest of Kensington Gardens. The funeral was solely a family affair. Expansion of railway routes in the previous two decades certainly would have made it possible for his mother, two other brothers, and three sisters to travel from Yorkshire to London for the funeral, whether or not all of them actually made the journey. The option had not existed in 1836, when Snow chose to walk from the City of York to the metropolis rather than sit in a mail coach. Surely, Uncle Charles Empson made the shorter train journey from Bath, if he was physically able, to say a final goodbye to a beloved nephew.

Was Jane Weatherburn allowed to attend? If so, she would have been the only outsider. None of the hundreds of medical men or dentists in metropolitan London with whom Snow had worked for over two decades were permitted to pay their respects.

Nor did the Snows of Yorkshire allow any of Snow’s closest friends and colleagues to stand at the grave site. Not Peter Marshall. Not John French. Not even Benjamin Ward Richardson.
Prologue

On the Monday following, Dr. Snow was buried at the Brompton Cemetery. It was the wish of many of his medical friends to follow him to his last home. But his relations, recalling his own unostentatious feeling, laid him in the grave in simple ceremony; and there, ingenious friend, in the sleep that knows no waking, he sleeps on and takes his rest; the rest he has earned.

Simple ceremony? Richardson had been searching for a way to express what had transpired without revealing how much he still smarted from the family’s categorical dismissal of a celebratory memorial service for John Snow. “Simple ceremony,” my eye! More likely a fundamentalist ploy to save the soul of a son and brother they believed fell from grace during twenty-two years in the godless metropolis.

For the Snows still living in Yorkshire belonged to the evangelical wing of the Church of England. His mother, Frances Askam Snow, was a widow of more than two decades; she still resided in the farm-house just outside the City of York she had shared with her husband. William Snow, Sr. (“A sinner saved by grace and truth as revealed by Jesus Christ”), was buried in the intra-mural cemetery of All Saints, North Street, the church in which they were married and all nine of their children baptized. Two school-teaching daughters and a son who owned a temperance hotel still worshipped at this church with their mother. Eulogies were an affront to God, they insisted in the manner of every true believer. Their own vicar from Halifax would suffice for the rites they had in mind.

The family’s view of John Snow was an arrested portrait of the ardent teetotaler who had enlisted his family in the temperance cause shortly before departing for London in 1836. His commitment to temperance activism never flagged; in fact, shared interests in the cause had helped forge bonds of friendship with Richardson.
Prologue

For Snow, temperance was no Trojan horse with Christian missionaries hiding in its belly. Richardson knew he had no personal interest in organized religion; the universal laws of nature provided sufficient evidence of divine mystery for Snow’s needs. His family was correct in thinking that the oldest child was not ostentatious, but they seemed unaware that John Snow was a very proud man. Not overproud or vainglorious, but pardonable pride in his accomplishments and the success he had achieved in the medical profession. It was that aspect of his character which had prompted Snow to sit, outfitted in the sartorial regalia of a physician to the aristocracy and at his own expense, for a photographic portrait so that he could be included in the Literary and Scientific Portrait Club of eminent Victorians. He could be touchy about his reputation, quick to correct any misconstruction of his ideas, zealous at protecting his priorities, often spoiling for controversy. But Snow’s family seemed oblivious to that side of him, as well.

In short, Richardson thought he should have been memorialized by medical men who had a truer measure of his mature character and accomplishments than his evangelical-minded family.

Richardson stopped writing and walked to a window overlooking Hinde Street. He knew that London-life was not altered by the death of any individual. Yet it still took him aback, six weeks after Snow’s death, when he observed people going about their daily affairs as if nothing unusual had happened. They were right, of course. Deaths are a common occurrence.

Perhaps the unexpectedness still unnerved him. Together on a Wednesday evening with several friends and colleagues; Snow in good spirits about the forthcoming research project under discussion. A stroke happens the next morning and he’s dead within a week. No opportunity to exchange final good-byes, either; from what he had learned from the attending physicians, Snow was in denial throughout his ordeal and saw no need to contact anyone.

At first, Richardson dealt with the sudden loss and disappointment by tidying the project Snow was working on when the fatal stroke occurred. He made fair copies of manuscript pages not previously sent to the publisher. He interpolated a few words to complete the sentence Snow was writing when the fatal stroke occurred, but no more than that. He prepared the table of contents and index according to a plan Snow had broached with him long ago. Any informed reader would immediately realize that Snow’s discussion of anaesthetic agents, other than chloroform and...
ether, was incomplete. Richardson did nothing to obscure the fact that this was an unfinished book, interrupted by the author’s untimely death.

In July, Richardson received the proof sheets for *On Chloroform and Other Anaesthetics*. The book would be published in October, introduced by the biographical memoir of Snow’s life he was currently writing. The essay would fulfill a promise made a few years ago, when Snow had accepted the offer to be his biographer. At the time, neither thought there was any rush. Nonetheless, Richardson had used occasional get-togethers to ask Snow questions about his early life and what he had done in London prior to the beginning of their friendship in 1850. After the funeral, he convinced someone to loan him Snow’s written remains — notes and notebooks, case books, various manuscripts, biographical mementos, etc. — for as long as he needed them to complete his task.

Richardson sensed that a posthumous book on anaesthetic agents required an introduction to the author whose death had eventuated in a truncated project. It would be a preliminary to the full-scale biography he planned to write at a later date. He chose to write a memoir from the perspective of a grief-stricken friend and colleague. The manuscript had ballooned into an essay that would exceed fifty printed pages if he didn’t stop soon. It was anecdotal, impressionistic, often based solely on what Snow had told him without any fact-checking or additional research. None of that troubled him in the least. They had been friends, for goodness sakes! This memoir was Richardson’s undelivered eulogy for John Snow.

That meant he had to get it right.

* * *

Richardson added two more lines to the paragraph about Snow’s interment, then glanced again at a letter from Charles Murchison detailing his involvement in Snow’s final illness and an outline of the autopsist’s report. The *post mortem* had revealed unambiguous evidence of chronic diseases of the kidneys and lungs, to a degree that Snow must have been a dead man walking the last couple years.

In all likelihood, peculiar personal and work habits had taken a massive toll on his constitution. Richardson noted that “both the kidneys were much contracted and granular, with numerous cysts, the right organ being almost entirely converted into cysts; with the uriniferous tubes either denude, or containing granular disintegrating epithelium.” Amazing the kidneys had functioned as long as they did, given what he knew about Snow’s fanatical devotion to an obscure vegetarian screed. A medical apprentice’s rebellion against his Newcastle-upon-Tyne principal was excusable; but to carry it on for fifteen years – through two apothecary assistantships in the north of England, London medical training and certifica-
tion, plus another seven years in private practice before making any changes – boggled the mind. How could a medical man with his unparalleled knowledge of physiology and chemistry delude himself that potatoes and root vegetables normally provided sufficient fluid intake for a healthy constitution? Perhaps a youthful over-reaction to a scarcity of potable water, taken in tandem with a commitment to temperance, quickly upgraded to abstinence. If he had only made more use, early on, of the ingenious mechanism for distilling water that he devised, also whilst an apprentice. By the time he did so after developing kidney stones in his early thirties, it was much too little and far too late for the health of his kidneys, at least.

Snow’s lungs were almost as dysfunctional. Murchison wrote that all lobes “were congested, and showed marked evidence of old disease at the apices.” No details given, but Richardson knew about the tuberculosis Snow had tried to deal with by strengthening regimens in diet and exercise. He must also have wondered if anaesthesia research had taken an unexpected toll. Starting in January 1847, shortly after news reached London of a successful exhibition of ether inhalation in America, Snow had used himself as an experimental subject to devise a chart of insensibility stages as well as increasingly refined apparatus for administering the agent in a controlled manner. When chloroform was proposed as an alternative to ether, Snow replicated the investigative process that had proved so successful with ether. Dangers of chloroform overdose, however, could not be ignored. Snow had become obsessed with finding an anaesthetic agent that combined the safety of ether with chloroform’s non-lethal advantages. He always tested every potential agent for safety, dosage, and comfort on himself, often repeatedly, before he would consider using them on patients. Now, in death, the toll was evident in Snow’s lungs.

Did the photographic portrait taken the year before offer clues to Snow’s deteriorating condition? The physician’s garb was handsome, but the viewer’s attention goes straight to the puffy hands. The hands. Were they an inheritance from his parents, an unskilled laborer and a weaver’s daughter? Or was there a medical explanation — fluid build-up from early stages of renal and pulmonary insufficiency?

The rest of the post mortem findings seemed to reflect
expected damage following the fatal stroke. After all, he had hung on for six days.

Richardson had just skimmed the entire draft of the manuscript. Why was he so angry? Something’s off. What could it be?

Richardson rummaged through a few piles on the floor behind his chair until he found what he wanted — two obituaries for the late Dr. Snow from mid-June. The *Lancet* gave him all of three lines, to the effect that he was known to the profession for the administration of chloroform. Nothing about cholera. The *Medical Times and Gazette* was slightly more expansive: “We announce with great pain and grief the death of our distinguished and estimable brother, . . . .” Several sentences followed on his work with chloroform; but just one tepid sentence about his cholera investigations.

Richardson then rifled through a stack of documents until he located an 1856 report on the two most recent cholera epidemics to affect London by John Simon, the Medical Officer of the General Board of Health. Simon and the rest of the Committee for Scientific Purposes had conducted a retrospective study of cholera mortality in South London with nary a mention of Snow’s priority in conceiving and conducting a separate investigation during the 1854 epidemic. Richardson’s anger mounted when he saw William Farr’s name amongst the list of committee members. No wonder Snow never received the missing data Farr had promised to extract from the water companies; once Farr got ahold of it the committee had kept it under wraps for their own use. And then the committee had the gall to understate, grossly understate, the impact of provisioning foul water to hundreds of thousands of people during a cholera epidemic. As dishonest as it was appalling! The *Medical Times and Gazette* had rebuked the Board of Health and Simon for treating Snow so shabbily, even as the journal again commented that Snow’s theory struck them as too exclusive; for its sanitarian editors agreed with William Budd, and Richardson for that matter, that poisonous cholera matter was as likely to exist in air as in water. Richardson had spear-headed a public condemnation of Simon and endorsement of Snow’s priority at the July 1856 meeting of the British Medical Association. No apology was forthcoming. Snow, himself, had published a blistering critique and counter-analysis in the public health journal Richardson edited, followed a year later by a short summation of his concerns in the *British Medical Journal*; but both were to no avail. Simon’s report constituted the official interpretation, and was often so presented in newspapers, medical journals, and at medical society meetings.

That’s why Richardson was furious. No wonder so few people knew and appreciated all his friend had done to solve one of the chief public health problems of the day.
Richardson knew what needed doing to set things to right. He picked up a slim volume, *On the Mode of Communication of Cholera*, 2nd edition (1855). He ran a finger down the table of contents until he found the desired passage and turned to page 80:

... as 286 fatal attacks of cholera took place, in the first four weeks of the epidemic, in houses supplied by the former Company, and only 14 in houses supplied by the latter; the proportion of fatal attacks to each 10,000 houses was as follows. Southwark and Vauxhall 71. Lambeth 5. The cholera was therefore fourteen times as fatal at this period ... . . .

Typical Snow. He often buried what should be a lead.

Richardson returned to the draft of his memorial essay, flipped to the desired page, extracted a pair of scissors from a drawer, cut off part of a page, picked up a fresh sheet of paper, and began to writing:

Wherever cholera was visitant, there was he in the midst. A long sentence, then the clincher: The result of his endeavours, in so far as scientific satisfaction is a realization, was truly realized, in the discovery of the statistical fact, that of 286 fatal attacks of cholera, in 1854, occurring in the south districts of the metropolis, the proportion of fatal cases to each 10,000 houses supplied by these waters, was to the

Southwark and Vauxhall Company’s water 71, to the Lambeth 5.

Just needed to delete both of Snow’s time-limited phrases to make a small part of the investigation stand for the whole.

Richardson looked again at the table of contents in Snow’s book on cholera, located the first mention of “communication of cholera through the medium of polluted water in the neighbourhood of Broad St., Golden Sq.,” and quickly skimmed the relevant pages. By his own admission, Snow had not visited this cholera field until three days after the outbreak began; and he said the outbreak was essentially over when he convinced the local authorities to disable the pump.

Won’t do at all. Snow’s investigation was a model of effective hypothetico-deductive reasoning confirmed by a painstaking interviewing process. It deserved an honorific retelling. Richardson knew he would find a fitting way to do it:

There was, however, another fact during this epidemic, which more than the rest drew attention to Dr. Snow’s labours and deductions. In the latter part of August 1854, a terrific outbreak of cholera commenced in and about the neighbourhood of Broad-street, Golden-square ...