

John Snow (1813–1858) and Benjamin Ward Richardson (1828–1896): a notable friendship

Shirley Roberts

South Yarra, Victoria, Australia

Keywords: J Snow; B W Richardson; cholera

Although it is now over 140 years since John Snow died, he has certainly not been forgotten by the medical profession. The importance of his contributions to two different branches of medicine – anaesthesiology and epidemiology – is now much more widely acknowledged than it was during his lifetime. But to gain some understanding of the man himself, readers must turn to a brief biography written by his friend Dr Benjamin Ward

Richardson. Their friendship, which lasted for eight years, was ended by Snow's sudden death at the age of 45. Richardson lived for another 38 years, during which his original work in physiology, pharmacology, epidemiology and public health won for him several medical awards and a knighthood. Now, however, Richardson (Figure 1) is remembered mainly because of his friendship with John Snow (Figure 2).



Figure 1. Benjamin Ward Richardson. Photograph by Lock & Whitfield. (By courtesy of the Wellcome Institute Library, London.)

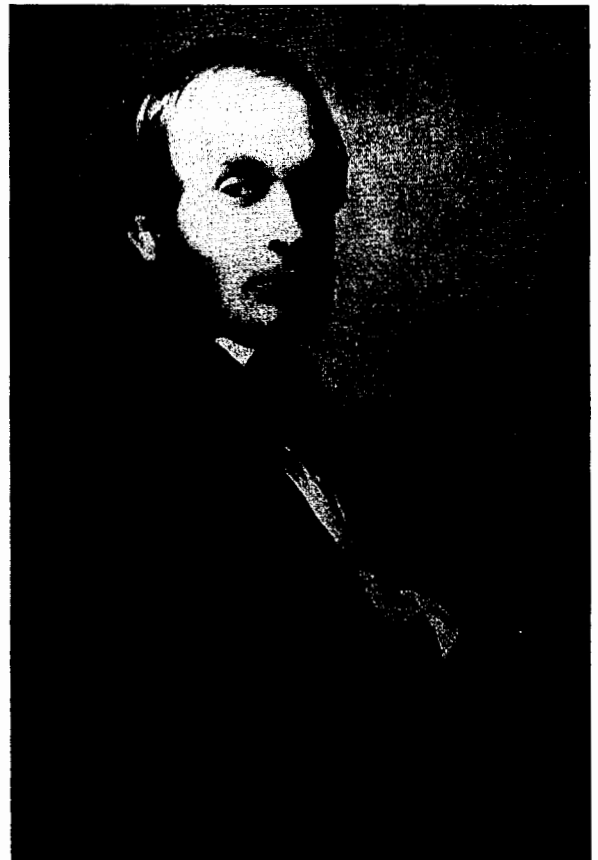


Figure 2. John Snow. Portrait by an unknown artist. (By courtesy of the Wellcome Institute Library, London.)

Correspondence to: Dr Shirley Roberts, 193 Domain Road, South Yarra, Victoria 3141, Australia

Their early years

Benjamin Ward Richardson was born in Somerby, Leicestershire, on 31 October 1828; he was the only child of Benjamin Richardson (a grazier)¹ and his wife Mary (née Ward). The boy's otherwise happy childhood was marred by the chronic ill health of his mother. Knowing that she would not live to see her son reach manhood, Mrs Richardson extracted from him a promise that he would devote his life to the practice of medicine. She urged him to follow the example set by the famous surgeon William Cheselden (1688–1752), who was also born in Somerby. Benjamin was barely 10 years old when his mother died, but it seems that he never regretted the promise he made to her².

He began his medical training as an apprentice to a Somerby surgeon, Henry Hudson. The apprenticeship was followed by a year's attendance at Anderson's College in Glasgow, and then by working as an assistant to two country practitioners, the first in Essex and the second in Leicestershire. Richardson was offered permanent positions in several country practices but, like Cheselden, he saw his future in London. In 1850, after further studies in Glasgow, he passed the examination to become a licentiate of the Faculty of Physicians and Surgeons of Glasgow. Then he moved to Mortlake, in outer London, to work as an assistant to Dr Robert Willis of Barnes.

Willis was a former librarian of the Royal College of Surgeons and had also been the editor of the *Medical Gazette*. He encouraged Richardson to develop his literary talents, even while working for a higher medical qualification. A chance meeting with the dramatist Douglas Jerrold introduced Richardson to a literary circle whose members included W M Thackeray and William Hepworth Dixon. He enjoyed singing to the group, especially when his accompanist at the piano was a talented young lady, Miss Mary Smith. Before long, they announced their engagement, but the marriage had to be postponed until Richardson had achieved a more secure position in the medical profession.

The energetic young man made frequent trips to the city centre to visit the Library of the British Museum and to attend the meetings of several medical societies. Either the Medical Society of London or the Epidemiological Society could have been the scene of his first meeting with John Snow. In 1850 the Medical Society was in the process of merging with the Westminster Society, an organization supported by former students of the Hunterian medical school. Snow, an "old boy" of the Hunterian school, and a member of the Westminster, regularly attended meetings of the new, enlarged Medical Society. Snow was also a founder member of the Epidemiological Society³, which Richardson joined shortly after its formation in July 1850. The two soon became close friends, despite the marked differences in their personalities and backgrounds.

Snow's father, William Snow, was a poor Yorkshire labourer, and John was the eldest of nine children. Without the financial assistance provided by a relative, Charles Empson of Bath, Snow probably could not have embarked on the training for a medical career^{4,5}. This hardship in early life had intensified his innate seriousness and reserve. Richardson, by contrast, was a sociable young man who readily made friends.

Snow was 15 years older than Richardson. He had begun his medical training as an apprentice to a Newcastle surgeon. Then, like Richardson, he had served as an assistant to two country practitioners before coming to London to continue his studies. A year later, in 1838, having qualified as a surgeon-apothecary, he was able to open his own practice. But his sights were set on higher academic achievement, so he spent much of his time in study and research, particularly in the fields of respiratory and circulatory physiology. His original papers on these subjects were well received, and in 1844 he obtained the MD of London University.

Two years later Snow had achieved distinction in a new field of medical practice – anaesthesia. Unlike some of his colleagues, he had realized that before agents such as ether and chloroform were accepted for general use their possible adverse effects needed to be fully assessed. He tested them on animals, and then on himself; then he designed equipment that enabled the concentration of the vaporized drug to be controlled accurately. His services as an anaesthetist were soon being sought by London's leading surgeons, and his practice thereafter was devoted almost entirely to this work.

In 1848 another event had temporarily become Snow's main interest. In that year a sudden outbreak of cholera in southern England provided him with an opportunity to gain a better understanding of this disease, which he had first observed during his apprenticeship in Newcastle. The clinical features of cholera suggested to him that it was not caused, as many believed, by the inhalation of toxic vapours in the atmosphere; the evidence indicated that the poison gained entry to the victim's body by being ingested with food or drinking water. He expounded this theory in a booklet entitled *On the Mode of Communication of Cholera*, which was published in 1849.

Dr William Budd of Bristol was one of the few medical men who accepted Snow's theory. Budd examined specimens of the watery stools of cholera victims and found in them "peculiar microscopic objects", which he thought were the causative agent of the disease. But when a committee appointed by the Royal College of Physicians repeated Budd's experiments, the members concluded that the minute particles were merely shed epithelial cells and undigested food particles. Unfortunately, many medical men linked Snow's "water-borne" theory of cholera with Budd's erroneous observations, and rejected them both.

Their friendship begins

When Snow and Richardson first met in 1850 Snow's name was already becoming well known within the profession. Richardson tells us:

"He was of middle height, of somewhat slender build, and of sedate expression. His long life in comparative student loneliness had made him reserved in manner to strangers; but with private friends he was always open, and of sweet companionship. . . . His private conversation was both constructive and amusing; he was full of humorous anecdotes, which he told in a quiet and irresistibly droll style."⁶

Richardson later recalled that during his early years in practice he often appealed to Snow for advice on the management of a difficult case. At the end of a day's work Snow gladly travelled to Mortlake to help his friend. After discussing the problem and arriving at a solution, they would sometimes repair to the laboratory that Richardson had installed in his small house; there they would share their interest in chemistry. At other times they browsed among the books in Richardson's library, and Snow would enjoy his friend's readings of extracts from their favourite authors. Richardson admired Snow's quiet sense of humour and shrewd perception of human nature.

Richardson was surprised to learn that since the age of 17 Snow had been a vegetarian and a total abstainer from alcohol. Richardson then shared the popular belief that alcohol promoted health and strength, and should be taken regularly. In later life he abandoned his view completely and became the leader of a temperance movement, but in his youth he urged his friend to drink wine with his meals. Snow was reluctant to change his habits. However, in 1851, when the Great Exhibition was held in Hyde Park, Richardson did manage to persuade Snow to take the first holiday he had had in years, and to enjoy the company of old friends who were visiting London for the event.

The years of achievement

These early years of their friendship were a period of hard work and professional achievement for both Richardson and Snow. In 1852 members of the Medical Society chose John Snow to be their orator at a special meeting planned for the following year, to celebrate the eightieth anniversary of the founding of the Society. The meeting was held at the Thatched House Tavern on 8 March 1853. Snow spoke on the subject of epidemic diseases and advanced his theory that the causative agents of some of these were spread by contamination of food and drinking water. Richardson described it as "an admirable oration" and praised his friend's performance:

"He made no claim to the orator's gown; but the address was too forcible not to call forth the enthusiasm of the audience. He spent nearly twelve months in the preparation of this oration, in which he endeavoured to convey, in the most pleasing manner

at his command, a broad view of his observations on the communication of certain spreading diseases."⁷

A royal patient

A month after delivering the oration, Snow was again in the public eye. On 7 April 1853 he was called to administer chloroform to Queen Victoria during the birth of her eighth child, Prince Leopold. This attracted a great deal of public interest. Some opponents of anaesthesia had argued that, since birth is a natural process, it was unethical to administer drugs to relieve its pain; Her Majesty's sanctioning of the practice undermined their case. Four years later Snow was again called to anaesthetize the Queen during the birth of her last child, Princess Beatrix. Richardson tells us that after each of these events Snow was pestered by curious members of the public who were eager to know how the Queen had behaved and what she had said. He could easily have lost his temper and dealt with them brusquely, but he showed great tact in politely evading all their questions.

Richardson's career was also progressing well. In 1854 he received the Medical Society's Fothergillian Medal for his paper "Diseases of the foetus in



Figure 3. The house at 12 Hinde Street, where Richardson lived from 1854 until 1880. He then moved to a nearby house in Manchester Square.

utero". In this he reported his extensive research of a subject that had previously been ignored by the medical profession. Although the paper was not published, it won for Richardson a position on the editorial staff of the *Medical Times and Gazette*.

It was also in 1854 that Richardson obtained the MD of St Andrews University. Now he felt ready to open his own practice as a physician. With Dr Willis's full support he moved from Mortlake to central London, where he leased part of a house at 12 Hinde Street, adjacent to Manchester Square (Figure 3). This became his home and was also the site of his consulting rooms. His private practice was at first very small, leaving him time for other professional commitments. He served as physician at the Blenheim Street Dispensary and was appointed lecturer in forensic medicine at the Grosvenor Place School of Medicine.

The cholera epidemic of 1854

Snow was also enjoying professional success. By 1852 his growing practice as an anaesthetist had enabled him to move from lodgings in Frith Street, Soho, to a more comfortable residence at 18 Sackville Street, Piccadilly⁸ (Figures 4 and 5). But late in 1854 another event temporarily demanded

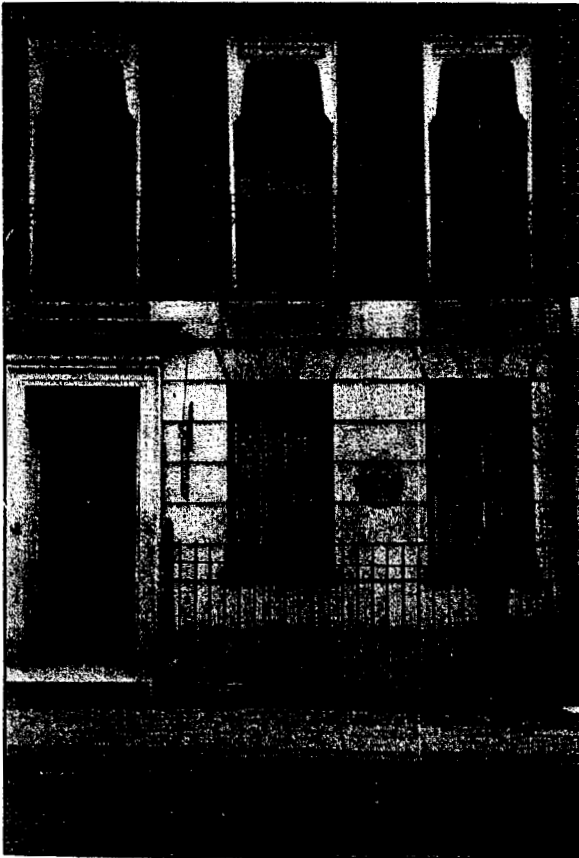


Figure 4. Snow's residence at 18 Sackville Street, Piccadilly. This building was demolished in the 1970s. (By courtesy of the Wellcome Institute Library, London.)

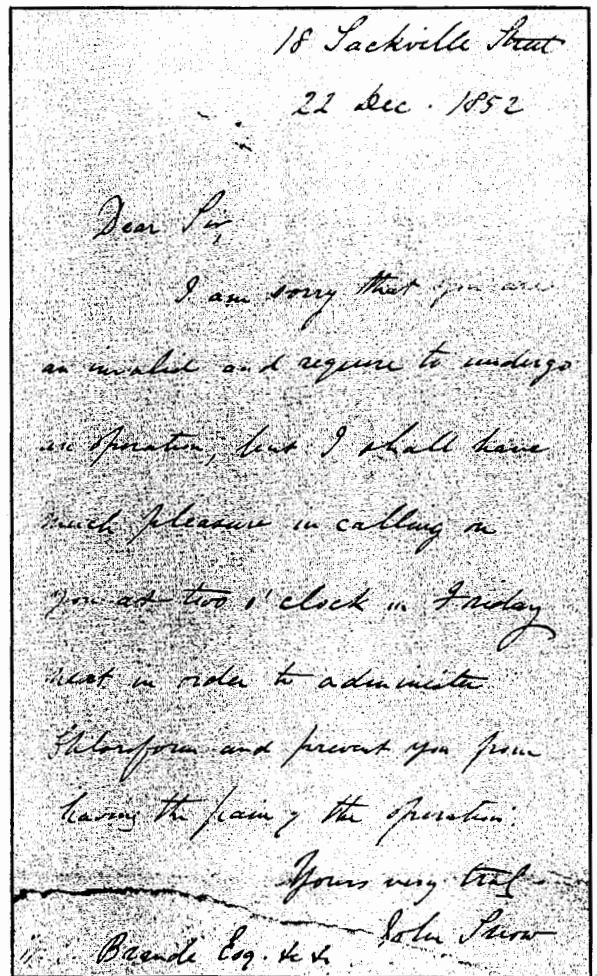


Figure 5. This letter to a patient, written by John Snow in December 1852, shows that by that date he had moved from Frith Street, Soho, to Sackville Street, Piccadilly. (By courtesy of St George's Hospital Medical School, Tooting.)

all his time and energy. London then experienced another cholera epidemic, the two most severely affected areas being Soho and south-east London. Snow left his practice in the hands of colleagues while he carried out a detailed study of the pattern of distribution of the disease. He found that in each of the two areas some households were unaffected, although their immediate neighbours nearly all contracted the disease. Further studies indicated that the irregular distribution pattern could be linked to a single factor – the source of a household's drinking water.

In south-east London most of the victims lived in houses served by the Southwark and Vauxhall Water Company, which piped water from a section of the Thames into which sewers drained. Another company – the Lambeth – supplied the households in which there were very few cholera victims. The Lambeth Company also obtained its water from the Thames, but it used a site further upstream, where there were no entering drains or sewers.

In Soho another water source was implicated. Most of the cholera-stricken households used drinking water from a pump in Broad Street (Figure 6). On 7 September the vestrymen of St James's Parish in Westminster held an urgent meeting to discuss ways of ending the epidemic in Soho. Snow attended the meeting and was granted a hearing. He recommended a simple measure – the immediate removal of the handle of the Broad Street pump! This incident, now famous, was recounted by Richardson, who commented⁹: "The vestry was incredulous, but had the good sense to carry out the advice. The pump handle was removed, and the plague was stayed." But the result was not really as dramatic as he implies; the Soho epidemic had already passed its peak when the vestry meeting was held.

Professional recognition

Early in 1855 Snow published a second edition of his book *On the Mode of Communication of Cholera*, in which he set out very clearly his recent investigations and the conclusions to be drawn from them. But Snow's contemporaries failed to appreciate the immense importance of his findings. Richardson speaks of this as "a work in the preparation and publication of which he spent more than £200 in

hard cash, and realised in return scarcely so many shillings"¹⁰.

Lack of interest in Snow's book was probably due to the vigorous campaign being waged by a member of the Board of Health, Edwin Chadwick. Chadwick believed that the most effective way to improve public health in crowded cities was to clear away evil-smelling refuse heaps and cess-pools. These could be drained into rivers, he thought, because the flow of river water would quickly carry the filth out to sea, where it would be so diluted as to be harmless. Chadwick's readers ignored Snow's argument that rivers that were a source of drinking water needed to be protected from contamination.

Richardson was also contributing to the literature on public health. Between 1855 and 1868 he was responsible for the production of two highly regarded journals – the *Journal of Public Health and Sanitary Review*, and the *Social Science Review*. Their demise was made necessary by the growing demands of his practice on Richardson's time and energy.

The public's response to authors was a subject of concern to the two friends. Richardson tells us that Snow was not willing to write reviews of the work of others; he thought that good books spoke for themselves, and bad ones were better ignored. But Snow did at times write forthright letters to the editors of the *Lancet*¹¹ and the *British Medical Journal*¹², if he thought his contributions to medical knowledge had been mistakenly accredited to someone else, or if he had been unjustly criticized. He shared his knowledge freely, but he expected due acknowledgement.

For Snow the year 1855 was memorable for another event. On 10 March he was installed as President of the Medical Society for the ensuing year. Richardson tells us that he was both diligent and tactful in the performance of his duties. On one occasion a meeting of the Society was attended by the elderly Dr Henry Clutterbuck, who had been President for three separate terms between 1819 and 1840. Many of those present did not immediately recognize Dr Clutterbuck, but Snow, "in a way that was irresistible in its simple courtesy resigned his chair to the veteran Aesculapian"¹³. Clutterbuck was delighted; in the following year, despite his increasing fragility, he managed to attend the ceremony that marked the end of Snow's term as President.

In 1856 Snow accompanied Charles Empson on a visit to Paris. Empson was personally acquainted with the Emperor, who entertained the two travellers on several occasions. Snow had taken with him a copy of his *On the Mode of Communication of Cholera*, which he entered for an award offered by the Institut de France. The award would honour the best contribution to scientific knowledge of cholera. Snow had been optimistic, but Richardson tells us that the judges did not even mention his entry in their report¹⁴. Snow was not

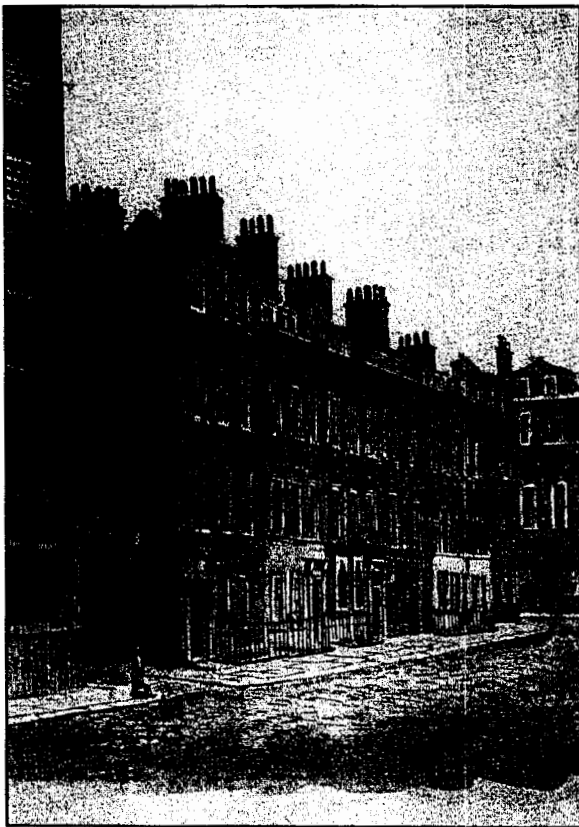


Figure 6. Broad Street, Soho, the scene of one of Snow's historic epidemiological discoveries. (By courtesy of London Metropolitan Archives.)

discouraged; refreshed by the holiday, he returned to his busy anaesthetic practice and to the writing of medical articles.

In the same year, 1856, Richardson passed the examination for the membership of the Royal College of Physicians and was also awarded the Astley Cooper Prize for an essay on the coagulation of blood. His professional status now seemed secure, so on 21 February 1857 Benjamin Ward Richardson and Mary Smith were married.

The death of John Snow

In 1857 Snow had eight articles published; five of them were on anaesthesia, two on cholera, and one on rickets. This exceeded his output in any previous year. He then set about writing a comprehensive review of the various anaesthetic agents currently available. On the morning of 9 June 1858 he had just completed a draft of this work when he suddenly suffered a stroke that paralysed the left side of his body. Richardson cared for him during this illness, but nothing could save him. John Snow died on 16 June 1858.

Richardson preserved Snow's draft manuscript and prepared it for publication. When the book came out in 1858 its title page read: "*On Chloroform and Other Anaesthetics* by John Snow M.D., with a Memoir of the Author by Benjamin Richardson M.D.". This memoir is still the best available source of information on the personality of John Snow.

Snow's brothers, who were the executors of his will, wrote to Richardson suggesting that he take over John's well established anaesthetic practice. He declined the offer. Although in later years he was to continue his researches into anaesthesiology, he had no desire to restrict his practice to this branch of medicine.

Richardson's later career

The diversity of Richardson's interests throughout his professional life is reflected in the wide range of medical, social and literary topics on which he wrote books and articles. Physiology and pharmacology, epidemiology and public health were all subjects that attracted him. He also enjoyed biographical writing, and it is probably this section of his work that has the greatest appeal to modern readers.

In 1887 he published a two-volume work entitled *The Health of Nations*, in which he combined an account of the life of Edwin Chadwick with a review of Chadwick's writings on public health and sanitation. Between 1884 and 1895 Richardson published *The Asclepiad*, 11 volumes of essays on "the Science, Art and Literature of Medicine". He also compiled a collection of shorter biographical essays on notable medical men, but this collection was not published during his lifetime.

In middle age Richardson took up the cause of temperance, and over a period of 20 years he wrote and lectured on the harmful effects of tobacco and alcohol. Whereas his views on other subjects were generally respected by his colleagues, his condemnation of drinking and smoking aroused the anger or derision of some of them. But for the rest of his life he continued to support the temperance campaign.

Awards and honours

Perhaps if Richardson had concentrated his energies on a narrower range of intellectual pursuits he would have won lasting fame in one or two of them. His contemporaries did, however, recognize his achievements, and rewarded him accordingly. In 1865 he was elected a Fellow of the Royal College of Physicians, and two years later he was made a Fellow of the Royal Society. In 1868 the Medical Society installed him as its President, an experience that must have stirred his memories of John Snow.

Richardson had a long association with St Andrews University. He was chiefly responsible for the founding of the St Andrews Medical Graduates' Association, and he also led a successful campaign for the inclusion of St Andrews in the group of universities recognized by the Medical Act of 1858. In 1877 his service to the University was rewarded with an honorary doctorate of laws.

In August 1881 London was the venue of the Seventh International Congress of Medicine. This event, which attracted worldwide interest, was attended by 3000 members of the medical profession. It brought together such famous men as Pasteur, Lister, Huxley, Charcot and Koch. One might suppose that Richardson would have been eager to participate in its meetings and discussions, but in the *Transactions of the Congress* his name appears in the list of "Subscribers to the General Fund of the Congress who did not enrol themselves as Members".

The reason for his absence is not known, but it may have been his unwillingness to accept the new science of bacteriology, a subject that was bound to dominate many of the sessions. Fifteen years later, when Lister's surgical antiseptic technique was in general use, and Koch had long since identified the bacterial species responsible for tuberculosis and cholera, Richardson wrote:

"The marked change that of late years has agitated us most is that in relation to germs and the development of a science called by its advocates 'bacteriology'. It is a theory only, and, as I have shown from the first, rests mainly on analogy, a dangerous support."¹⁵

Richardson's dismissal of bacteriology did not place him at variance with John Snow's views on cholera. Snow's objective had been to determine the mode of spread of the cholera "poison". Whether this "poison" was a chemical substance

or a minute living organism was a question that did not concern him.

Richardson's death

While some of Richardson's views had become outmoded, his colleagues still respected him for his years of devotion to medical progress. In 1893 he was awarded a knighthood, an honour that must have given him great pleasure. Three years later, having reached the age of 68, he was reducing the size of his practice, but was still writing with

enthusiasm. The end of his life came suddenly, in a manner that closely resembled the death of John Snow. On the evening of 19 November 1896 he was working in his library, completing the last chapter of his book *Vita Medica*, in which he reviewed the important advances in medical knowledge that had occurred during his lifetime. Later that evening he suddenly collapsed, having suffered a cerebral haemorrhage. He died two days later.

Benjamin Ward Richardson was survived by his wife, a daughter and two sons. None of his children followed him in the practice of medicine; his elder son was a lawyer, the younger an artist. But the family supervised the publication of his last two books. *Vita Medica* appeared early in 1897. In 1900 the collection of biographical essays was published in two volumes, under the title *Disciples of Aesculapius*. The first essay in the first volume is a biography of Richardson himself, written by his daughter, Mrs George Martin. The subjects of the other 44 essays include Thomas Wakley, William and John Hunter, Ambroise Paré, John Keats, Erasmus Darwin, John Howard and John Snow. The essay on Snow is a slightly abridged version of the one Richardson wrote for Snow's last book, *On Chloroform and Other Anaesthetics*.

In his later years Richardson had been an advocate of cremation, so he himself was cremated and there is no gravestone to mark his burial site. But John Snow's grave in Brompton Cemetery serves as a memorial to their friendship. A year after Snow's death Richardson had written to the *British Medical Journal*, inviting colleagues to contribute to a fund that would provide for "a plain but durable monument over the grave of the late Dr Snow"¹⁶. The monument was duly set in place. Its subsequent history is recorded in the engraving it now bears (see Figure 7).

References and notes

The main sources of information on the life of Richardson are: the brief biography written by his daughter, Mrs George Martin, and published in his book *Disciples of Aesculapius*⁶; and Sir Arthur S MacNalty's more detailed study². For John Snow the main source is Benjamin Ward Richardson's biographical memoir, first published in Snow's book *On Chloroform and Other Anaesthetics*, but now more readily available in reprints of Richardson's *Disciples of Aesculapius*⁶.

- 1 The death certificate of Mary Richardson (Benjamin Ward Richardson's mother) records her husband's occupation as "grazier"
- 2 MacNalty AS. *A Biography of Sir Benjamin Ward Richardson*. London: Harvey and Blythe, 1950:2-3
- 3 *Lancet*, 27 July 1850: 134
- 4 Ellis RH, ed. *The Case Books of Dr John Snow*. Medical History Supplement No. 14. London: Wellcome Institute for the History of Medicine, 1994:xiii
- 5 Leaman A. John Snow MD - his early days. *Anaesthesia* 1984;39:804

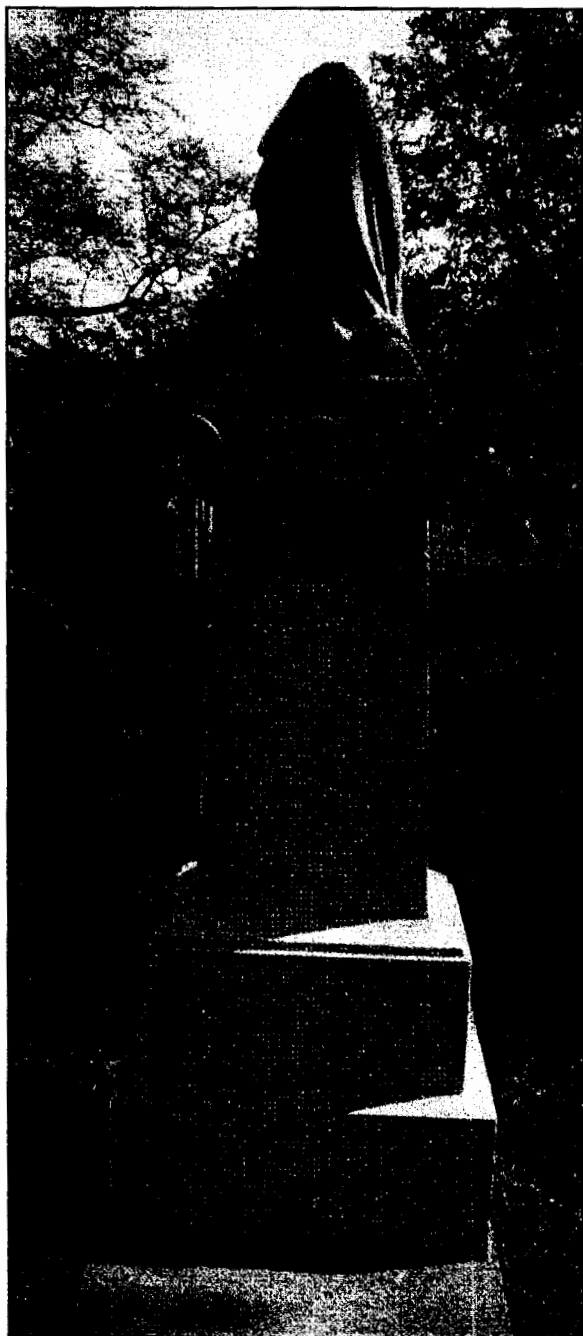


Figure 7. John Snow's grave in Brompton Cemetery.

- 6 Richardson BW. *Disciples of Aesculapius*. London: Hutchinson & Co., 1900:240-1
- 7 *Ibid.*:236
- 8 The exact date of his move to Sackville Street is not known. However, the Medical School Library at St George's Hospital, Tooting, holds a letter written by Snow to a patient. He gives his address as 18 Sackville Street and the letter is dated 22 December 1852
- 9 Richardson BW. (op. cit. ref. 6):235
- 10 *Ibid.*: 235
- 11 Snow J. *Lancet*, 16 February 1865, p.184
- 12 Snow J. *BMJ*, 1 August 1857, p. 654
- 13 Richardson BW (op. cit. ref. 6):236
- 14 Sir D'Arcy Power, who wrote the article on John Snow for the *Dictionary of National Biography*, states that the Institute awarded Snow a substantial prize, but this is incorrect - see Edwards G. John Snow and the Institute of France. *Med Hist* 1959;3: 249-50
- 15 Richardson BW. *Vita Medica*. London: Longmans, Green & Co., 1897:449
- 16 Richardson BW. *BMJ*, 21 May 1859, p.415