

The making of an epidemiologist: John Snow before the episode of the Broad Street pump

R Stanwell-Smith

In 1831 a young surgical apprentice in Newcastle 'wilfully disturbed the congregation' at a religious meeting by letting off a firecracker¹. This 17-year-old firebrand became the punctilious, but still at times pugnacious, Dr John Snow (1813-1858), who made such brilliant contributions to epidemiology and to anaesthesia that he is claimed as the father of both. A search on the internet now produces 70 or more pages of sites mentioning Dr John Snow, mostly in relation to epidemiology². Eponymous lectures, societies, organisations and buildings reflect his iconic status and Snow's influence extends from medicine to mapping, with water science and sanitation also staking a claim. Most students of epidemiology are familiar with the story of the Broad Street pump and its investigation by Snow during the cholera epidemic in London's Soho in 1854. Many are also aware that at the time of this epidemic, Snow was an established physician with a large anaesthetic practice, including the first anaesthetic given at a royal birth. Few know anything about the early years that shaped this extraordinary man. Now Spence Galbraith has written the definitive account of Snow's life before the Broad Street pump¹. Dr Galbraith, the first Director of the Communicable Disease Surveillance Centre, was inspired by Snow's work to take up a career in public health and epidemiology. He gave

one of the early 'Pump Handle Lectures' for the John Snow Society in 1994 and the book is the result of his further research into Snow's early life, incidentally correcting several of the inaccuracies recorded by Snow's first biographer, Richardson³, and perpetuated or compounded since Richardson in other accounts of Snow.

What do these new insights into Snow's development tell us about

'Snow, ... chose to take the available examinations of the day and to ensure that he gained wide clinical experience as well as respected qualifications, ... a step that gave more authority to his later controversial views.'

how to be a good communicable disease epidemiologist? The firecracker episode was uncharacteristic of Snow's later, apparently exemplary behaviour, but it was possibly also an early sign of rebelliousness against received knowledge and norms of the day. During one of his assistantships, his behaviour shocked the apothecary and his family, the former through burning

the old bandages (the apothecary's custom was to re-use them); and the latter through his strict vegetarian diet and views on temperance. Although this was an era of rapid change in medical practice, with the introduction of new instruments such as the stethoscope, and regularisation of routes to qualification, the apothecary in question had remained unqualified.

Snow, by contrast, chose to take the available examinations of the day and to ensure that he gained wide clinical experience as well as respected qualifications, steps that gave more authority to his controversial later views. One of the most fascinating aspects of Dr Galbraith's account of these early years is the vivid impression of an evolving and forward looking medical school at Newcastle in the 1820s and of general practice in the 1830s. Snow had also benefited from a childhood and schooling in York, which was one of the most important cities of the time, undergoing major changes in trade, building and social structures. He grew up surrounded by change, and perhaps this made him more confident in embracing the developments in ideas and practice that characterised his later career. He took full advantage of the 'natural experiments' all around him, including the cholera epidemic of 1831-2 in Newcastle, keeping careful records of his observations. It was essential experience for studying the 'grand experiment'⁴ of the changes in water supply that informed his theory of the transmission of cholera. His case books⁵ of his practice in London demonstrate attention to clinical detail and excellent record keeping, examples of what is required of a good epidemiologist. Snow's brilliant work on cholera shows how he drew on this accumulated experience, for instance in writing of how cholera spread amongst children⁶:

'...when it is remembered that children get their hands into everything, and are constantly putting their fingers in their mouths, it is not surprising that the malady spread in this manner.'

Dr Ros Stanwell-Smith is the Honorary Secretary of The John Snow Society, London.

What seems obvious to us now was highly controversial in the science of the 1840s and 1850s, dominated by miasmatic theories of disease transmission. From Snow's early experiences and training we see that he did not emerge, icon-like, when he chanced upon the outbreak surrounding the pump in Broad Street. Instead, the combination of his medical training, scientific experiments and application of logic to his observations all led him to the point when he could make well informed deductions; this predating our current emphasis on evidence bases by a century and a half.

Epidemiology and public health have undergone many changes since his time, but Dr Galbraith's researches on Snow's early years lend weight to the idea that Snow exemplified the ideal public health epidemiologist: determined, dedicated and highly skilled. He made progress by being difficult^{7,8}, unafraid to challenge the views of

other physicians and scientists, in turn presenting and demanding evidence. He also appeared to recognise the advantages of multidisciplinary public health, in working with non-medical colleagues to undertake investigations and to ensure that research was followed by action. Snow also showed political skills – another prerequisite for achievement in public health – by joining and enthusiastically supporting several medical societies, and becoming a founder member of the council of the Epidemiological Society of London¹. Above all, the early years of Snow's life show that clinical experience and clinical observation were fundamental to his later achievements, and this must inform any debate of the role of clinicians in epidemiology and in public health. Snow would no doubt have wondered why the matter needed any debate, but we can be sure that he would have presented cogent arguments.

References

1. Galbraith S. *Dr John Snow: his early years*. London: Royal Institute of Public Health, 2002. (May be ordered via the official John Snow Society website at www.riph.org.uk/johnsnow.html or from the John Snow Society, RIPH, 28 Portland Place, London W1B 1DE.)
2. Websites for Dr John Snow: one of the best is the UCLA site (www.ph.ucla.edu/epi/snow); see also John Snow Society site above.
3. Richardson BW. The life of John Snow MD. In: Snow J, *On chloroform and other anaesthetics*. London: Churchill, 1858. Pp I-xliv.
4. Frerichs RR. History, maps and the internet: UCLA's John Snow site. (www.ph.ucla.edu/epi/snow).
5. Ellis RH, editor. *The case books of Dr John Snow*. London: The Wellcome Institute for the History of Medicine, 1994.
6. Snow J. *On the mode of communication of cholera*. London: John Churchill, New Burlington St, England, 1855.
7. Stanwell-Smith R. Being unreasonable and making progress in public health. *Health and Hygiene* 2000; **21**(2):47-8.
8. Lilienfeld DE. John Snow: the first hired gun? *Am J Epidemiol* 2000; **152**(1): 4-9.