Celebration: William Farr (1807–1883)—an appreciation on the 200th anniversary of his birth

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Accepted 22 March 2007

If one were to ask a student in an introductory epidemiology course which Victorian epidemiologist most influenced the field’s development, there’s a good chance the student would say ‘John Snow’. As that student begins collecting surveillance data as part of a doctoral thesis, the odds are good the student will not know who first developed the concept of surveillance. When the student begins analysing those data, there’s a likelihood the data will be coded using the International Classification of Diseases (ICD), especially if the data concern more than one disease entity. Should the results indicate the need for public health action, the student might contact a local, state or federal public health agency to report the results and advocate for appropriate intervention. Yet, in each of these instances, the influential Victorian epidemiologist who pioneered in the area of the student’s actions was William Farr (Figure 1).

Farr is relatively unappreciated by modern epidemiologists compared with his more feted peer, John Snow.1–3 Yet, it was Farr who developed the first national vital statistics system and assured its use as a surveillance instrument. His efforts also facilitated the use of that system for the conduct of epidemiologic studies. Farr’s endeavours to craft a disease nosology usable by vital statisticians and epidemiologists led to the creation of the ICD.4 The structure of the ICD derives from Farr’s 1860 proposal.4 These concepts and ideas have become interwoven into the fabric of epidemiology, so much so that Farr’s name is not necessarily mentioned as the innovator. Yet, without his many contributions, the face of epidemiology today would be markedly different.

A definitive biography of Farr and compilations of his writings provide ample opportunity for modern epidemiologists to learn about Farr.5–8 In view of his considerable contributions to the discipline, it seems fitting to celebrate his 200th birthday with brief considerations of both his biography and his impact on our field.

Biography

William Farr (November 30, 1807 to April 14, 1883) was born in Kenley, Shropshire, England to poor parents.9 When Farr was 2 years old, he moved to Dorrington. In Dorrington, he came under the influence of Joseph Pryce, the town’s squire (http://en.wikipedia.org/wiki/William_Farr, accessed November 25, 2006).

References

32 Spycher BD, Silverman M, Brooke AM, Minder C, Kuehni CE. A multidimensional data-driven approach to phenotype definition in childhood wheeze and cough, Submitted for publication.
Educated at the local school, Farr decided in 1826 to study medicine. He undertook studies in Shrewsbury; and he supported himself as a dresser (surgeon’s assistant) in a nearby infirmary, walking 14 miles daily. Three years later, Farr inherited £500 from Pryce’s estate; he used these funds to travel to France for continued medical studies, where he was introduced to hygiene and medical statistics. The Paris School was in its heyday; Pierre Louis was establishing a numerical approach to clinical research. Farr is known to have attended Pierre Louis’ classes, but Eyler suggests Farr’s interest in medical statistics did not derive from Louis alone.4 Farr also acquired some training in Switzerland.

In 1831, Farr returned to Shrewsbury for 6 months work as a house surgeon, and then went to University College in London.4 A year later, the London Society of Apothecaries qualified him as a physician, though some suggest he practised as a pharmacist.9 In 1833, he married a farmer’s daughter and the couple settled in London near Fitzroy Square. Farr wrote articles on hygiene, public health and statistics (http://www.lshtm.ac.uk/library/archives/farr.html, accessed November 25, 2006) to supplement his income. The quality of this work commanded the attention of the editor of the Lancet, Dr Thomas Wakley. In 1837, Farr completed two works of note: a chapter called ‘Vital Statistics’ for the pre-eminent Victorian economist John McCulloch’s reference text Statistical Account of the British Empire, and an article on consumption (of which his wife would die that same year) with Sir James Clarke.9,10 Clarke was so impressed by Farr that in 1837, when the Office of the Registrar General began operations, he and Wakley recommended Farr for the post of Compiler of Abstracts.


As Compiler of Abstracts, Farr created the first national vital statistics system.5,11 He began the compilation of vital statistics data on an annual basis, including analyses of causes of death and assessments of mortality by occupation. To support this work, he developed a nosology from which the ICD developed. Farr was an enthusiast on the use of vital statistics, and his efforts in this regard were recognized by the London Statistical Society (predecessor of the Royal Statistical Society), which elected him Treasurer, Vice President, and in 1871, President.

Farr’s advocacy of vital statistics found its way into several activities outside the bounds of the Registrar General’s Office, including data (and analyses) for Sir John Simon’s Local Board of Health, the Royal Army and Navy and Dr John Snow’s landmark epidemiologic studies on cholera. With regard to the latter, Farr was not an early adopter of William Budd’s and Snow’s hypothesis that contaminated water was the means by which the epidemic propagated.12,13 Until he reviewed the data for the 1853 epidemic of cholera in Newcastle, Farr contended the spread of the disease was attributable to miasmas.12,13 Although he indicated an interest in vital statistics, he obliged her with data she subsequently published. Although there is some suggestion she might have discretely been Farr’s Victorian mistress, it is not clear that she and Farr were indeed lovers.4,10

When Major Graham, the second Registrar General and the principal one under whom Farr served, retired in 1879, Farr made it known he wished to be Registrar General himself. However, he did not receive the appointment, and in consequence, he retired in 1880.4,9,10 Three years later, he died.

Contributions to epidemiology

Farr’s contributions to epidemiology are myriad. They range from systems construction to the ‘Farr’s law of epidemics’ (the latter refers to Farr’s observation that the risk of cholera is inversely related to altitude).4 In consideration of Farr’s efforts, we must distinguish between what Farr knew in the 1800s and what we know today. For example, Farr occupies a prominent role in the epidemiologic investigations into the means by which cholera spread. Yet his conviction that miasmas were the
causal agent of the disease is known today to be wrong.\textsuperscript{1,14–16,18} Nonetheless, Farr based his view on epidemiologic data available at that time (in the 1850s), and he was quick to acknowledge his error when better data so indicated. The incongruence of his ‘law of epidemics’ with the development of the 1866 cholera outbreak in England led him to conclude that miasmas could not be the etiological agent. He then advocated strongly on behalf of better water supplies to prevent recurrence of the epidemic.\textsuperscript{14–16}

The creation of a national vital statistics system amenable to epidemiologic exploitation is arguably Farr’s single greatest achievement.\textsuperscript{11} It not only established a means of providing data to epidemiologists, it also was an exemplar for other countries seeking to create similar systems. Further, the system provided data not only for the cholera investigations which unfolded during the 1850s and 1860s but also for the first systematic studies in occupational epidemiology by Greenhow and for Seaton’s analyses of the efficacy of smallpox vaccination.\textsuperscript{4,12} The latter became the scientific basis for English public health policy for more than a half century. As Higgs has noted, Farr’s success did not stem from his efforts alone; the Registrar-General, Major Graham, played a strong supporting role, without which it is not clear Farr would have been as effective as he was.\textsuperscript{19} Nonetheless, Farr implemented a system which has functioned, albeit with revisions to accommodate advances in medicine and changes in society, for one and a half centuries.

Not all of Farr’s accomplishments derive from his work in the Registrar General’s office. For example, Farr was engaged by the London Statistical Society to undertake an analysis of the mortality associated with the treatment of lunatics. Although by modern standards, his analysis was not refined, it suggested several changes in the care given to such patients (http://www.mdx.ac.uk/www/study/3_11.htm, accessed November 25, 2006).\textsuperscript{20} Surely this analysis is one of the earlier ones in health service research.

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