William Farr: Campaigning Statistician

by Stephen Halliday.

During the reign of Queen Victoria the average life-span of her subjects increased from 38 years to just over 52 years, an unprecedented improvement. Many can claim to have contributed to this. In the previous century Edward Jenner (1749-1823) had demonstrated that the common and often fatal smallpox virus could be prevented by vaccination though it was only in Victoria's reign that vaccination, though controversial, became widely accepted. Engineers like Sir Joseph Bazalgette (1819-91) promoted the health of the populations of cities by building effective waste disposal systems. Florence Nightingale (1820-1910) made hospitals less dangerous places by turning nursing from an ill-regarded occupation into a profession. Zepherina Veitch (1836-94) and others campaigned to establish midwifery as a profession, thereby excluding the Mrs Gamps of Charles Dickens's *Martin Chuzzlwit* whose crude and ignorant practices had ensured that deaths following childbirth remained obstinately high until the passing of the Midwives Act in 1902. One of the most important, and neglected figures in improvements in public health was central to the campaign to improve care in childbirth and in many other areas. This was **William Farr** (1807-83) who suggested that the expression from *Dante's Inferno* "Abandon hope all ye who enter here" should be inscribed above the entrances to maternity hospitals until they improved their maternal care and hygiene practices.

Farr was appointed as "Compiler of Abstracts" (i.e. chief statistician) to the Registrar-General of Births, Marriages and Deaths when the post was created in 1838. The Registrar-General was a long-forgotten popular novelist called Thomas Lister but Farr was the moving spirit in the new office which was to take over responsibility for compiling the decennial national censuses, the first having been conducted in 1801. Farr came from Kenley in Shropshire, his parents being of modest means, but his talents were soon noticed by a local squire and by a doctor in Shrewsbury, each of them helping the young man with his education and with legacies amounting to £1000 to help him pursue his education. He qualified as an apothecary and was one of the early contributors to *The Lancet*, founded in 1823 by the surgeon Thomas Wakley (1795-1862) to campaign against medical malpractice. Although Farr had no formal mathematical training he contributed articles on Life Assurance as well as on hygiene and quack medicine.

Following his appointment as "Compiler of Abstracts" on the strength of his articles Farr declared that "Diseases are more easily prevented than cured and the first step to their prevention is the discovery of their exciting causes". He set about creating a firm foundation for his work. He wrote to the Presidents of the Royal Colleges of Physicians and Surgeons and the Society of Apothecaries urging them to encourage their members, when recording a death, "to give, in every instance, an authentic name of the disease". To help with this he provided a "statistical nosology" which listed and defined 27 fatal disease categories. Some of these were curious, such as "suddenly", while typhoid and typhus were not recognised as distinct diseases until the 1860s.

William Farr

Each year he assembled the data into tables accompanied by charts which drew attention to problems and trends. He demonstrated, for example, that people living in towns and cities had shorter lifespans than those living in the countryside. This was critical at a time when Britain was becoming an urban society. At the beginning of the century 30% of the population lived in urban areas whereas by 1900 the figure had reached 78%. Farr attributed the difference in mortality to the squalor which overwhelmed the homes of the urban poor and campaigned for clean homes, clean water and efficient sewers. Much of his influence was due to his talents as a writer. He had an ability, unusual in a statistician, to explain statistical facts in a clear and unambiguous way, using graphs and charts where necessary. He shared this ability with his friend and ally Florence Nightingale who actually invented a form of pie chart to strengthen her arguments and was the first woman to be elected to the (later Royal) Statistical Society.

Farr was not always correct. In 1849 Dr John Snow (1813-58) published *On the Mode of Communication of Cholera*, based upon his observations of the pump close to his surgery in Broad Street

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(now Broadwick Street), Soho. Snow concluded that the cholera epidemic which was raging in London at the time was caused by polluted water and not, as most assumed, by a "miasma" of polluted air. Snow commented that workers at the nearby brewery, who drank its beer rather than water from the pump, escaped cholera while breathing the same air as those who had died after drawing water via the infamous pump. Farr was prominent amongst those who denied Snow's claims despite the fact that Farr himself produced a chart which clearly indicated the relationship between the Broad Street pump and the incidence of cholera. In 1855 he explained the relationship as being due to the narrow streets of Soho with their "imperfectly trapped gullies and ventilating shafts constantly emitting an intense amount of noxious exhalations". Such is the strength of orthodoxy.

Eleven years later Farr was given the task of investigating London's last great cholera epidemic which killed 5,596 people in one square mile in Whitechapel in 1866. His careful enquiry showed beyond doubt that the epidemic was caused by polluted water from the River Lea and he was gracious enough to acknowledge that Snow had been correct in his hypothesis that the disease was waterborne. Farr remained in his post until he retired in 1879 and enjoyed a growing international reputation. Charles Darwin and Florence Nightingale were amongst those who contributed to a testimonial fund upon his retirement. He died on 14th April 1883 and *The Lancet* recorded that he "laid the foundation of our knowledge of vital statistics in England" and added that "his influence on public opinion on health matters was in great measure due to his picturesque style of writing" which had helped to influence politicians and others who were well placed to make improvements in public health. His descendants are the multitude of statisticians at the Office for National Statistics who not only compile the census but also tell us about our economy, our education, our health and every aspect of our national life, a task which was originally undertaken by a gentleman from Shropshire with no formal training in mathematics.

About Stephen Halliday

Dr Stephen Halliday is a writer, lecturer and broadcaster with a particular interest in Victorian London and in the engineers who made nineteenth century cities safe and habitable. He has written for The Observer, The Guardian *and* Financial Times *and has made several radio and television programmes based on his books, which include* The Great Filth: The War Against Disease in Victorian England, *Sutton Publishing 2007 .*