

**‘The great want of the time’: episodes in the
development of preventive medicine
in parts of Glamorgan.**

*No disease of the spreading class is able
successfully to cope with the means at command
of a population determined to arrest it.¹*

Introduction

‘It is becoming more and more apparent’, wrote the editor of the medical journal, *The Lancet*, in 1874, ‘that the great want of the time as regards the sanitary condition of the people, is the want of a Ministry of Health.’² Not everyone would have agreed with him. A nineteenth-century expert once informed a parliamentary committee that having a new sanitary measure should reduce the workload of medical men. This was received with prolonged peals of laughter.³ Neither was Dr Alexander Williams’s claim that it was cheaper to pay for health than for disease well received in Neath in 1880.⁴ The first response could be attributed to ignorance. The other arose because of the expense involved. There were some, too, who merely accepted that the suffering associated with disease was unavoidable. What was beyond dispute was the devastating effects which illnesses of this kind were having. As the editor of *The Times* put it in 1884:

‘where war claims one victim fever demands a score ... A badly constructed drain may be more fatal than a sharp skirmish ... And the individual, solitary and unaided, can no more fight against the ravages of disease than he can resist single-handed the inroad of a load of armed marauders.’⁵

At least as early as Old Testament times it had been known that some forms of disease could be contagious.⁶ The coming of the plague to Britain in the sixteenth century led to the introduction of a form of quarantine on those travelling by ship. Eventually, anyone suspected of carrying infectious conditions might be detained in pest-houses or lazarets. Those so afflicted, particularly travellers from abroad, were isolated in the hope of minimizing the risk to others. By 1720, a new Act (7 Geo, c.3) made it an offence, punishable by death, for anyone caught attempting to escape from a pest-house.⁷ But those efforts were still uncoordinated and ineffective. Nor were they invariably popular. It was suggested in Swansea in 1817 that a ‘fever house’ should be built there. A petition protesting at this was immediately circulated. It was signed by more than eighty residents, including several doctors. There, it was maintained that this move was unnecessary and might damage the town’s reputation.⁸

The few other measures introduced to combat such disorders were, understandably, rarely sufficient. In 1805, a plan was drawn up on the instructions of the Privy Council ‘to prevent the spreading of the Plague or other contagious disease.’ It was believed that even the ‘cloaths and apparel’ of those infected were ‘capable of retaining it.’ Therefore, anyone who cared for the sick was to remain in their presence for as brief a time as possible.⁹

There was no existing means of studying the effect of those problems. In 1837, Britain led the world by introducing a means whereby births, marriages and deaths were registered.¹⁰ To quote the Registrar-General, ‘how the people ... live is one of the most important questions that can be considered; and how ... they die is scarcely of less account.’¹¹

A way of providing details about variations in disease patterns and in highlighting health needs was thereby introduced. Its value became only too apparent in dealing with the effects of the epidemics which were to follow. Towards the end of the century, the Infectious Diseases Notification (Extension) Act of 1889 took things further. If the new law were adopted in a district, the local authority ought to be told about outbreaks of certain infectious diseases there. The notification of some of these conditions was made compulsory in 1899.

The role played by some bacteria in causing those conditions was not yet known. It is commonly said that the founder of the science of bacteriology was the Dutch draper, Antonie van Leeuwenhoek (1632-1723).¹² In his letters to the Royal Society in the 1670s, he described the 'animalcules' that he had observed using the microscopes constructed by him: 'When I lookt against a strong light, through my Microscope, that I saw an infinite number of exceeding number of small Particles ... I never imagined that these Particles were in the air.'¹³ Following on Leeuwenhoek's pioneering work, Thomas Apperley wrote in 1731 that 'there are in our Atmosphere Particles so far removed from our Natures, as to be in the highest degree hostile and hurtful to our Spirits and Humour.'¹⁴

Epidemic disorders

Among the most feared of the communicable states found in Britain in the nineteenth century were smallpox and Asiatic cholera. (The 'English cholera' was a less serious condition. The term might be used as a label for any condition marked by vomiting and diarrhoea.) Smallpox could be transmitted by direct contact and might occur on a large or localised scale. With Edward Jenner's discovery of vaccination using cowpox matter, a way of preventing it had been made available. That is not to say that the disease was no longer feared. It was merely that there was now a greater chance of preventing its appearance. Apart from the loss of life and suffering caused, the financial outlay involved when epidemics appeared was considerable. The medical officer of health for Monmouthshire estimated in 1927 that a smallpox outbreak in that county had already resulted in an expenditure of £23,000. There were still large numbers of people in hospital so that the final cost would be greater. 90 *per cent* of those who contracted the disease were unvaccinated ('an ill-informed and foolish section of the community.')

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The Asiatic cholera was water-borne and happened only in epidemic form. In this case, there was no comparable vaccination technique. What became a pandemic started in India in 1817 and reached Britain in the 1830s.¹⁶ It had not yet been generally understood that the risk of transmitting it from person to person was negligible.

Various suggestions were put forward as to the cause of these conditions. The miasma theory held that impure air was responsible for infectious states. Even as soon as 1859, the editor of the *British Medical Journal* had some doubts about this, saying that

greatly doubting, as we do, the alleged ill effects of foul emanations in the open air upon human life ... A bad smell may be no more unhealthy than a bad taste; but we should, if possible, avoid the one as much as the other.¹⁷

The Archbishop of Canterbury believed that divine judgements were at work. He instructed the Anglican clergy to resort to the use of the appropriate prayer contained in the liturgy. It would be as well to remind the people of the need for repentance and humiliation too. The Board of Health had pressed on him to stress the importance of cleanliness, ventilation and strict temperance.¹⁸ Lord Palmerston, as Home Secretary, took a similar view. The ministers of the Church of Scotland asked him to agree to a day of fasting. His rejoinder was that it would be more appropriate to better the sanitary provisions in Edinburgh.¹⁹ This more advanced notion was eventually accepted in official circles. Convincing those who were most

at risk proved to be more difficult. Typical of that age was the description made of Aberdare in 1853: ‘every butcher slaughters as he likes ... beasts have been seen rushing through the streets having broken out of the slaughter-house ... [They discharge] into the street their blood and filth.’²⁰

It had been recommended by the Privy Council in 1831 that all communities should have a local board of health. It was to be made up of various dignitaries and medical men. Moreover, there might be a need to send troops or police to surround infected districts. A more realistic view was that ‘if the pestilential cholera can travel on the wings of the air how can we expect to confine it by iron bars?’²¹ There were also some other astute individuals who were prepared to challenge the views being put forward. In 1832, G. Davies, a surgeon working in Merthyr Tydfil, in drawing attention to these differing opinions, perceptively observed that ‘contagion is very far from being the general agent of its diffusion’. Ordinary though that statement may sound to a present-day observer, this was a remarkably insightful observation. Ahead of his time, he also recommended drinking freely of cold water as a successful means of treatment. In Swansea, it became the most widely discussed topic in the course of normal conversation.²² During the second epidemic in 1849, nearly 300 children in Merthyr Tydfil alone were orphaned.²³ At that time, in Cardiff, a temporary hospital was opened and house-to-house visits of inspection were made. Depots where free supplies of medicine could be obtained were opened. In one district, of nine houses, the families from eight had drawn their water from the same source. Those who lived in the other had remained unscathed by the disease. A local doctor, W. H. Paine (see below), then concluded that the offending agent was contained in water. John Snow had already made a similar observation in London. Despite this discovery, the difficulties faced would remain. As Snow remarked in the 1880s: ‘the ... studies of thirty-five years, have ... done little more than warn us from various kinds of hurtful activity, and teach us that at present our utmost power is but perhaps some very little ability of palliation.’²⁴

Fresh developments arising from new legislation only followed from necessity. Recurring epidemics and the abominable living conditions faced by a population rapidly increasing in size led to a need for active intervention. The work of the Royal Commission and Select Committee on the Health of Towns paved the way for the Public Health Act of 1848. This marked the beginning of a new phase in sanitary legislation.²⁵ A General Board of Health was founded. At the ratepayers’ request or in districts where the death rate exceeded twenty-three per 1,000 of the population, a local board of health could be formed.²⁶

The medical officer of health

With the most important, but least acknowledged, of the advances that came was the creation of part-time medical officer of health posts. All the evidence suggests that those chosen were admirably suited for the challenges with which they were faced. Badly paid as they were, they went about this time-consuming work with great vigour. There was a belief that each ‘has every inducement not to do his duty. His reappointment is in the hands of the very men on whose corns he is bound to tread’.²⁷ Sometimes, salaries were kept at a minimum to discourage candidates from showing too much enthusiasm for their work.²⁸ The first post established throughout England and Wales was at Liverpool in 1847. It was in the rural district of Tywyn, Meirionethshire, that a permanent appointment was first made in Wales, in 1851. John Pughe (1814-74) undertook those duties there without payment.²⁹ Some of the more heavily populated parts of Glamorgan – Cardiff (1853), Aberdare (1863), Swansea (1865), and Merthyr Tydfil (1852, temporary, 1868, permanent) – followed.³⁰ Typical of this new breed of doctors was Dr H. J. Paine (c.1816-94) of Cardiff.³¹ [As medical officer of health for forty years, he was also the port medical officer.] At the time of the 1849 cholera epidemic, there was held an inquiry into the town’s sanitary state. It was concluded that the

workhouse, gaol and infirmary were in a satisfactory condition. ‘Cardiff’, wrote the inspector, ‘for all that relates to refuse drainage has been left completely to its fate, unassisted by the ... aid of science or providence.’ He had never before witnessed such overcrowding. It was inconceivable that there could exist living accommodation of a lower standard elsewhere. In lodging-houses, it was not unusual to find relays of people using the same beds. Bedroom windows always remained closed and feverous states were never absent. Those affected were forced to leave and had to be admitted to the workhouse. Throughout 1847, the town had been faced with an epidemic of typhus, when 142 people died. It was believed that the condition had developed following an influx of Irish immigrants. Paine himself had caught the disease, and was severely ill for a prolonged period.

It was decided that a better means of disposing of sewage was needed. Poor drainage and inefficient scavenging called for attention too.³² Paine’s evidence was typical of that provided in other densely populated districts. But he had already prohibited the use of water for drinking from wells suspected of being contaminated. The earliest sanitary measure introduced came with the provision of a water supply in 1852. By 1856, there were more improvements. Water was being pumped into reservoirs from the river Ely at a point believed to be uncontaminated. It was then filtered through sand. Work on improving sewerage facilities had been completed by 1857. Shortly, the paving of streets had been brought about. Consequently, the death rate fell even though the size of the population had increased. By 1886, the contrast with the state of affairs described in the inspector’s earlier report was remarkable. £107,000 had been spent on sewerage improvements.³³ Largely due to Paine’s efforts, the increase in population had happened in the suburbs rather than in the congested town centre.³⁴

Following a critical report on the sanitary state of Merthyr Tydfil, a local board of health came into being there in 1850. Two years later, Dr William Kay became a temporary officer of health. The town could now lay claim to have been the first in the county to have moved in that direction. Kay found that the borough had the highest infant mortality rate throughout south Wales. Progress was slow, but considerable improvements were made from 1856 or so onwards. Death rates, including infant mortality levels, were lessened. Refuse was more regularly removed and sewage disposal was more effectively dealt with. The average age of death among the inhabitants also rose.

More headway was made with the arrival of the energetic T. J. Dyke in 1865. A busy general practitioner, he invariably spent at least twenty hours a week at this work. For that, he was paid £100 a year, with a small sum for sundries. Using average wages as a means of comparison, his rate of pay in present-day terms would have been rather less than £7.50 an hour.³⁵ Apart from preparing quarterly and annual reports, he kept himself informed about population changes, ages, occupations, marriages, births and deaths. Enquiries had to be made about the issues which influenced the health of the population. The prevalence of preventable diseases and the quality of the food made available all came within the range of his work. Besides, the safety and suitability of the dwellings within his district had to be assessed.³⁶

He had found that the details regarding deaths with which he was provided were probably not altogether accurate. In about four cases in every hundred, the cause of death was not entered. Water supplies in the district were frequently adequate because of the heavy rainfall on hilly ground. Large sums of money (£82,000) had been spent on supplying clean water in the district and nearly £60,000 on sewers. The existing sanitary laws recognised virtually all the evils that there were. What was lacking were the means of applying them, which were often ineffective or non-existent. Consequently, the cumbersome nature of the procedures to be followed led to unnecessary delays. There were difficulties in taking patients with infectious diseases to hospital. During a typhus epidemic in November 1868, he had applied

to a magistrate for an order to remove five patients. That having been obtained, the official concerned was not legally entitled to enforce it. No further action was taken. After some delay, a suitable building for use as a hospital had been found. Then, work had started on building another hospital. Neither had been able to take any patients as there was some uncertainty about the running costs. Furthermore, the Privy Council, the Poor Law Board, the General Registry Office and the Factory Office were all involved with the management of the public health services. In Merthyr, the local board of health, two burial boards, the poor-law guardians, district registrars and the inspector of factories all claimed to have an interest. Thereby, that 'unity and promptness of action' that was necessary in the management of contagious disease was lost. Having one elected board should readily solve the problem. It ought to have its own fulltime officials, with responsibility for a population of no more than 100,000.

The way in which hundreds of houses were often hurriedly built gave rise to difficulties. Foundations were being inadequately laid, there was no proper drainage and they were inhabited 'before they were dry.' These accounted for many of the sanitary evils in Dowlais and Merthyr. In his opinion, no building should be allowed to proceed unless the plans had been officially approved. A Ministry of Public Health ought to be created. It should be given powers to compel the setting up of local boards. Dyke also pioneered a sewage disposal technique which drew a great deal of attention from far outside that district.³⁷

By the 1870s, there followed more parliamentary enactments. In a speech delivered at Manchester in 1872, Benjamin Disraeli spoke of the first consideration of a Minister as being the health of the people. That speech is probably best remembered for his statement that there was a mistake in the Latin translation of the Bible. He maintained that rather than *vanitas vanitatum, omnia vanitas* (vanity of vanities, all is vanity), there should have appeared the words *sanitas sanitatum, omnia sanitas* (sanitas = health).³⁸ There followed the 1872 Public Health Act, which was viewed with mixed feelings in some quarters. It was described in a medical journal as half-hearted and ill-conceived. Those who framed it were said to have ignored the knowledge and experience already available. It would take many years, it was believed, to repair the 'miserable blunders' made.³⁹ Few would accept those views now.

The 1875 act allowed for the creation of sanitary authorities. Clean water supplies to houses were provided, together with improvements in the disposal of sewage. The creation of medical officer of health posts was made compulsory. A prime example of the failure of a council to understand the importance of their new duties was found at Denbigh in 1878. On the resignation of their medical officer of health, the only criticism that could be made of him was that he 'reported too much and went into details.' His successor was engaged on condition that 'he would not report too much'.⁴⁰ It had not been understood that this was one of the requirements of his post.

Inspectors of nuisances were to be employed together with the medical men. They played a crucial part in the implementation of the new sanitary laws. Their work extended from inspecting lodging-houses to examining the quality of foods. The best among them were frequently praised for their diligence, but standards varied. It is doubtful if many of the others employed were well suited for their work. As late as the 1880s, in various places, a grocer, a watchmaker, and a publican, had been given these positions.⁴¹

An increasing awareness of the importance of hygienic influences led to more protests being made about insanitary conditions. The Gower peninsula had invariably been regarded as having a healthy environment. There, such habits as the washing of pigs' entrails and depositing heaps of manure close to houses had previously been tolerated. In future, dealing with behaviour of the kind would come within the range of work of the medical officer of health. By 1892, a lower death rate there bore 'a glorious testimony to the purity of the atmosphere and general sanitary conditions of the district.'⁴²

The Riparian Survey

With the coming of the industrial age, the escalating amount of trade with foreign countries heightened the risk of importing some disorders. The corresponding decline in agriculture led to a need to import more food, some of which might be contaminated. A surge in the number of incoming ships called for health checks to be made more frequently on crew members. It was for that reason that the port sanitary authorities were created in 1872. Where there were river harbours, riparian sanitary authorities assumed the same functions. The medical officers of health for those districts were thought to be well placed to take on the duties of port medical officers. They were faced with a wide range of duties. The causes of any disease conditions were to be investigated. Visits to ships to examine those suspected of suffering from infectious disease were to be undertaken regularly. They were to advise on the need for by-laws which might help protect crews from preventable illnesses. It was the customs or coastguard officers who initially decided which vessels and crew members called for a further examination. Port medical officers were able to detain those exposed to, or who were showing signs of, contagious disorders. The inspectors were to assess vessels for any possible sanitary defects and to examine imported foodstuffs and water supplies.

There was a threat of another cholera epidemic in the 1890s. And so, in 1892 and 1893-4, surveys of sea-ports were undertaken by the medical officers of the Local Government Board. Of the sixty port sanitary districts assessed, only about a third were found to be functioning in an acceptable manner. Competent and adequately paid medical staff and inspectors of nuisances should have been employed. There ought to have been made available isolation hospital facilities and proper means of disinfection. It was hoped that the Infectious Diseases (Notification) Act would have been adopted. By this means, information regarding the appearance of communicable disorders could be gathered. Regular inspection of shipping for sanitary purposes and the control of disease should have been routinely carried out. While similar powers applied to those existing on land, with some exceptions, sanitary practices were not nearly as well developed.

Generally speaking, the most efficient ports were those most often visited by foreign shipping. The preparations in place at the major Glamorgan ports – Cardiff and Swansea – were highly rated. The procedures in force there had probably played a critical part in having prevented a cholera epidemic. Cardiff, a customs port, was the busiest, having received 2,367 foreign and 2,241 coastwise ships in 1892. Dr Edward Walford, who was the town's medical officer of health, was regarded as being very efficient. The Infectious Diseases (Notification) Act of 1889 had already been adopted in Cardiff. Those aboard vessels arriving from infected ports were regularly assessed. Where cholera was suspected among them, they would be detained for forty-eight hours. If necessary, they could then be taken to hospital, using the council's steam tug. For the past four years, a stone building on Flat Holm Island had been leased for use as an isolation hospital. The one ward, with its nurses' duty room, could be supplemented by a marquee, with eight additional beds. A small nearby hotel building had been leased for use as an office. A mortuary and a crematorium, where cholera-infested material might be destroyed, were about to be constructed. The only other buildings there were a small artillery barracks and a lighthouse. There was no source of water, but supplies were brought daily by steamer. Disposal of sewage was by means of an earth closet, the contents being drained into a cesspit. Grazing land was being sub-let, on the understanding that the tenant would leave if there were an emergency.

The work of the three full-time inspectors was of a high standard. All incoming vessels were properly scrutinised and any nuisances were properly dealt with. Disinfection of clothing and similar material was carried out at the council's hot-air chamber. Contaminated

ships would be disinfected by sulphur fumigation and washing with per-chloride of mercury solution.

Few additional recommendations were made by the inspector. If cholera should occur, the same precautions should be taken with coastwise traffic as with those from foreign ports. Less importantly, a landing stage should be constructed at Flat Holm.⁴³

In the face of some opposition, on Dr Paine's suggestion, the warship *Hamadryad* was used from 1866 to house seamen with communicable diseases.⁴⁴ Among those admitted in 1868, six suffered from typhus, twenty-one from typhoid fever and eleven from smallpox, which had reduced the risk of an epidemic of the latter disease. By 1869, 421 inpatients and 597 outpatients had been treated there. The ship was withdrawn from use in 1905.⁴⁵

In Swansea, too, the medical officer of health, Dr Ebenezer Davies, was found to be competent. He undertook the same thankless work with the same dedication, for a salary that was far from adequate.

The first Welsh county medical officer of health

The Local Government Act of 1888 (51 & 52 Vict. C.41) proved to be another turning-point in the history of public health. County councils were created, and in 1892, Glamorgan was the first in Wales to employ a medical officer of health. The salary offered was £750 a year, £15 of which was for travelling expenses.⁴⁶ By 1904, no other Welsh county had done so.⁴⁷ A year later, there were many areas in England and Wales where no sanitary committees had been established.⁴⁸ Only fifteen appointments had been made throughout England and Wales by 1896 and forty-seven counties were without medical officers.⁴⁹

A Diploma in State Medicine was introduced by Trinity College Dublin in 1870, and other universities followed, offering comparable qualifications.⁵⁰ Eventually, all applicants for medical officer of health posts would be required to hold a qualification of this kind. This excluded most of that first generation of district medical officers, many of whom were more than competent, from applying.

There were fifty applicants for the Glamorgan post. After three hours' deliberation, a short list of six was drawn up. Dr William Williams (c.1857-1911) was eventually selected. The son of a tenant farmer, he was born near Dolgellau. A Welsh-speaker, having studied at Oxford, London and Berlin, he had graduated from Oxford University as a bachelor of medicine and bachelor of surgery in 1887. He became a member of the Royal College of Surgeons and Licentiate of the Society of Apothecaries in the same year. He also held the Diploma in Public Health from Oxford. After gaining experience in several clinical specialties, he became the deputy medical officer of health for Shropshire. He then returned to his home to care for his sick brother and to work as a general practitioner.⁵¹

His was a fulltime appointment and he should not offer professional advice to others without his employers' consent. He was to reside within the county at a place that had been approved by the council. If he should be disabled for longer than a month, he was to provide a *locum tenens* at his own expense.⁵²

A great deal was expected of him. Guidelines outlining the nature of duties for these posts had already been published. Apart from the medical side of his work, a knowledge of legal and chemical issues was asked for. He was to inquire as to those influences which might be injurious to the public health. Decisions must then be made as to how they might be removed. He should advise his employers on sanitary matters. Visits were to be made to any places affected by epidemics. The causes should be sought and recommendations made about means of preventing their spread. Records of deaths and sickness were to be kept. Drinking water must be regularly analysed. The state of burial places, slaughter houses and industrial sites were to be assessed.⁵³ Devoid of large numbers of supporting staff and being responsible for a wide area, his was no easy task.

It soon became apparent that his new employers had chosen well in selecting him. Within a year of his arrival, county councils were empowered to open hospitals for those suffering from infectious disorders. By 1911, there were functioning in Glamorgan sixteen, with a bed capacity of more than 500.⁵⁴ In 1896, the Infectious Diseases (Notification) Act had been adopted throughout the county except in Aberdare.⁵⁵ Then came a striking improvement in sanitary arrangements, which was attributed to his 'steadfast purpose and singleness of aim.'⁵⁶ Always keen to extend the work of the preventive services, in 1908, two school medical officers had been appointed.⁵⁷ Building on that foundation, future holders of his post would also be known as principal school medical officers.

His first major assignment followed from a resolution passed at the county's Sanitary Committee in April 1893. He was asked to undertake a survey of those heavily populated parts not already dealt with.⁵⁸ His regular visits might have been viewed as intrusive conduct by some district medical officers. The fact that this was not so may well be attributed to what was described as Williams's even temper and sincerity.⁵⁹ Seen as a precautionary measure in case there should be a cholera outbreak, he was asked to attend to this matter with some urgency. The few previous reviews had each dealt with one locality. Dr Williams's mission was more difficult involving, as it did, a great deal of travelling. Too detailed to be dealt with in detail here, it did not go unnoticed outside the county. A leading medical journal congratulated him on a most valuable piece of work. On its completion, he was awarded the degree of Doctor of Medicine from Oxford University.⁶⁰

Some years afterwards, he was invited to testify at the Royal Commission on Sewage Disposal (1901). There, he spoke of the vigour shown by his sanitary committee in dealing with the existing problems. Virtually all possible sources of pollution of rivers arose from industrial concerns sited within the county's boundaries. Constructing sewage farms was difficult because of the layout of the land in the long, narrow valleys. Water supplies were regularly examined at the county's laboratory.⁶¹

Soon, Williams had turned his attention to the high mortality rates associated with pregnancy. Much had been achieved in reducing the number of deaths from other preventable diseases. To his distress, maternal deaths during the puerperium remained at a high level. (The puerperium lasts for six weeks after the delivery of the baby.) He paid less attention to the 'accidents of childbirth', which included spontaneous abortions and uncontrolled haemorrhage. Those which largely took his interest were attributable to the infectious state known as puerperal fever. Deaths from this cause were higher in Glamorgan than the average values for England and Wales. Poverty and malnutrition are now not thought to have played an important part in their causation.⁶² The quality of care available at the time of delivery was of greater significance. This accords with Williams's finding that levels of skill among untrained midwives were abysmally low. 'What good', he asked in his 1904 report, 'is a thermometer to a woman who cannot read?' And there were some who could read but who could not take a temperature. Among the worst known to him was a woman of eighty-five years of age. Her bag of 'appliances' consisted of a box of snuff and a reel of thread. No mincer of words, their personal cleanliness was summed up thus: 'in common with tramps, they object to bathe and the process of disinfection.'⁶³

Attempting to bring about improvements must have been among the most challenging of the tasks faced by him. From time immemorial, any women who were available were left to grapple with the difficulties arising during delivery. There were some early textbooks on midwifery to which the literate among them would not easily have had access.⁶⁴ Well-written by the standards of the day, they largely ignored the problems associated with the risks of infection.

There had been a time when the Anglican bishops had held the right to sanction those working as midwives. The Church in Wales records held at the National Library give some

indication of the way in which the licensing procedure operated. Applicants' religious affiliations and the moral issues involved took precedence. Less attention was paid to assessing levels of skill.⁶⁵

At some uncertain time – possibly in the nineteenth century – a form of examination for midwives came into being at Edinburgh. They were not to attend to deliveries unless they had been assessed by a university physician.⁶⁶ In some other places, the need for proper training was sometimes discussed, but little resulted from that. Much of the resistance to registration came from among some groups of midwives themselves.⁶⁷ There were doctors too who viewed any attempts to bring about changes with suspicion. When the Obstetrical Society was formed in 1858, they faced some opposition from the Royal College of Physicians.⁶⁸

It was inevitable that Parliament should take action sooner or later. Williams testified at the parliamentary select committee set up to investigate the matter in 1893.⁶⁹ He spoke convincingly, as others did, about the need for change. That committee's findings paved the way for the passing of the Midwives Act of 1902. Its aim was to regulate their practice. There was to be made available some adequate means of instruction but no provision was made for the creation of training schemes. After 1 April 1905, no woman should style herself as a midwife if she had not qualified. From April 1910, the untrained were only to practise for financial gain under medical supervision. Those who had worked for a year before July 1902 could be registered. They must first provide evidence of good character. Soon, the Glamorgan council would provide a number of scholarships for those who wished to take up midwifery.

There was a risk that midwives who came into contact with puerperal fever might spread the infection. If that should happen, they were temporarily prohibited from attending to deliveries. Williams had suggested that they must be excluded for two months. They should be taught how to disinfect clothing. Their clothes were subjected to a process of steam disinfection and their instruments must be sterilised.⁷⁰

But the problem could not be dealt with merely by issuing new regulations. At Cardiff in 1903, a midwife so placed had gone on to manage two other deliveries; one of the women had died. There was insufficient evidence to show that it was she who had transmitted the infection. Had that been proved, the coroner was certain that she would have been charged with manslaughter. More unusually, in Cardiff in 1908, the registered midwife involved, being illiterate, had been unable to read the book of rules. In her case, the rules in being had been infringed in five different ways. Her patient died of a haemorrhage and she was charged with gross negligence. At the inquest, it was claimed that someone else had read the rules to her. A verdict of death due to haemorrhage was found. She was warned that in future she must send for a doctor when in difficulties. The possibility was then raised that midwives were in need of tuition on ethical matters.⁷¹

Williams was the second Cardiff doctor to have delivered the prestigious Milroy lectures at the Royal College of Physicians. He did so in 1904, taking as his title, 'Deaths in Childbed: A Preventable Mortality.'⁷² His in-depth study was not confined to Glamorgan. More than 4,000 women a year died annually throughout England and Wales in childbirth. It had been said in past times that maternity work was 'only fit for fools and old women'. At present, of the 700 or so midwives in Glamorgan, only seventy had undergone any training. Within the county, most deliveries were supervised by midwives working alone. He knew of an epidemic of puerperal fever when several women had died. They had all been attended by the same midwife. In cases of emergency, medical help was less easily obtained in isolated districts. Infectious states were found more often in the densely populated mining districts. He had no doubt that 'unskilled and ignorant' midwives often spread those conditions. They failed to recognize the need for medical help at times of crisis.

He was not to know that no solution to what was a worldwide phenomenon would be found for many years yet. In 1934, a ward at the Swansea General Hospital had to be closed

following three deaths there from puerperal sepsis.⁷³ Three years afterwards, more than 93 *per cent* of those midwives working in the county had been trained. Even given that marked improvement, there were seventeen deaths from puerperal sepsis in that year.⁷⁴ Older, independent midwives were still often lacking in an appreciation of the importance of using aseptic techniques.⁷⁵ Many persistently failed to accept that there were times when they ought to seek medical help. It was not until 1947 that, for the first time, no deaths from puerperal sepsis were recorded within the county. Maternal mortality from other causes too had reached its lowest level (1.84 per 1,000 live and stillbirths). This was still higher than the average rate for England and Wales (1.17).⁷⁶ (Williams paid less attention to the other related public health problem, that of infant mortality. In the first decade of the twentieth century, 120,000 children aged one year or less died annually throughout England and Wales. In 1904, there were 162 deaths per 1,000 live births in Glamorgan, as compared to 145 throughout England and Wales.⁷⁷

It was fortunate that the county's health committee so frequently accepted Williams's recommendations. At the time of his arrival, the Cardiff borough already had its own small laboratory. The county had no facilities for chemical and bacteriological analyses. If only a solution could be found, the new service ought to be self-supporting. It was his hope that a Department of Public Health could be created at the University College. Other medical officers of health, general practitioners and sanitary inspectors could then study the subject further.⁷⁸

The work of the first bacteriologist, Thomas Bowhill, (salary £250) on diphtheria soon drew some attention from outside Glamorgan.⁷⁹ During an epidemic at Senghennydd, thirty-nine people were diagnosed with the condition. He isolated a virulent strain of the organism from milk. The farmer involved was fined two pounds with costs. His successor, Dr W. G. Savage (1872-1961), afterwards had a distinguished career in public health, for which he was knighted.⁸⁰

The extent of the laboratory's duties was wide-ranging. Analyses of drinking water included that from incoming ships. Examining sewage and samples of food, including meat, also formed an important part of the work done there. The University College departments were allowed to make use of the laboratories in teaching postgraduate students. The college then became a recognised centre for those doctors studying for the Diploma in Public Health. In 1900, Drs Williams and Walford (Cardiff's medical officer of health) became lecturers at that department.⁸¹ In his report for 1905, Williams reported that having the laboratory had been a great success. Nevertheless, this had not happened to the extent for which he had hoped.⁸²

Williams died in 1911 at the age of fifty-four. He left behind him a public health system that could hardly have been equalled throughout Britain. It was once said of medical officers of health that their main function was to make themselves redundant. His work and that of his fellows had taken them considerably closer to achieving that aim than would have been thought possible a century sooner.

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17 April 2018

Abbreviations

NLW: National Library of Wales.

In preparing this paper, an extensive use was made of the National Library of Wales Online Subscriptions and Other Resources facility (OS):

BSP: Nineteenth century House of Commons Sessional Papers.
ECCO: Eighteenth Century Collections Online.
EEBO: Early English Books Online.
JSTOR: JSTOR The Scholarly Journal Archive.
NCBL: Nineteenth Century BL Newspapers.
ODNB: Oxford Dictionary of National Biography.
OED: Oxford English Dictionary.
TDL: Times Digital Archive.
WNP: Welsh Newspapers Online.

¹ Rollo Russell, *Epidemics, Plagues and Fevers: their Causes and Prevention* (London, 1892), pp. 495-6.

² *The Lancet*, 12 December 1874, 84.

³ Alfred Carpenter, *Preventive Medicine in relation to the Public Health* (London, 1877), p. 4.

⁴ *The Cambrian*, 8 June 1880. WNP.

⁵ *The Times*, 6 December 1884. TDL.

⁶ For example, *Leviticus*, chapter 13. Probably written in the seventh or sixth century BC.

⁷ John E. J. Sykes, *Public Health Problems* (London, 1892), p. 206.

⁸ *The Cambrian*, 13 December 1817. WNP.

⁹ *Ibid*, 24 August 1805.

¹⁰ Thirty-third Annual Report of the Registrar-General of Births, Deaths and Marriages in England, p. xxi. (1872) [C.667]. BSP.

¹¹ Quoted in W. D. P. Logan, 'Mortality in England and Wales', *Population Studies*, volume 4, no. 2, September 1950, 132-78: 132. JSTOR.

¹² A. R. Hall, The Leeuwenhoek Lecture, 1988, *Notes and Records of the Royal Society of London*, 43, 249-273 (1989) [249]. JSTOR.

¹³ Part of a letter, *Philosophical Transactions* (1683-1775 vol. 22, 903 and 907. JSTOR.

¹⁴ Tho. Apperley, *Observations on Physick, both rational and practical* (London, 1731), p.84. ECCO. The term bacteria was introduced in the nineteenth century. OED, p.82.

¹⁵ D. Rocyn-Jones, 'The Cost of a Smallpox Epidemic'. *Public Health Reports* (1896-1970), volume 42, no. 21 (May 21, 1927), 1446. JSTOR.

¹⁶ Norman Longmate, *King Cholera – the Biography of a Disease* (London, 1966) p. 1.

¹⁷ Editorial, *British Medical Journal*, 24 September 1859, 782.

¹⁸ *The Times*, 4 November 1848. TDL.

¹⁹ Jasper Ridley, *Lord Palmerston* (London, 1970), p. 76.

²⁰ Thomas Webster Rammell, *Report to the General Board of Health of a Preliminary Inquiry into ... Aberdare* (London, 1853), p. 11.

²¹ Longmate, *King Cholera*, pp. 9, 64.

²² *The Cambrian*, 20 October 1832, 14 April 1832. WNL.

²³ *Ibid.*, 27 July, 1849, 3. In the twentieth century, Merthyr Tydfil became the first district throughout England and Wales where all schoolchildren had chest x-rays, with the use of the

miniature x-ray scheme. *Merthyr Tydfil. Annual Report of the Medical Officer of Health 1944.* (Merthyr Tydfil, 1946).

²⁴ *Fourteenth Annual Report of the Local Government Board, 1884-85*, (1884-85) [C.4516] pp. 141-2. BSP.

²⁵ S. E. Finer, *The Life and Times of Edwin Chadwick* (London, 1952), pp. 232ff, 299ff.

²⁶ House of Commons. Public Health. A bill for promoting the Public Health. (1847-48), volume 6. BSP.

²⁷ *BMJ*, 8 July 1876, 51-2.

²⁸ W. H. Michael *et al* ed. Ernest Hart, *A Manual of Public Health* (London, 1874), p. 38.

²⁹ Royal Sanitary Commission to inquire into Operation of Sanitary Laws, (1874) volume 31, XXXI 603, p. 650. BSP. Born in Anglesey, Pughe (1814-74) studied medicine at St Thomas's Hospital, London, where he qualified (MRCS, 1837, LSA, 1838, FRCS, 1853. *Medical Register, (London, 1863)*, p. 319. He was the author of several Welsh books. *Y Bywgraffiadur Cymreig*. OS.

³⁰ Sanitary Act, (1873) [359], pp. 26, 42, 83. BSP.

³¹ Paine was born in Canterbury. After qualifying (MRCS LSA, 1839, MD St Andrews, 1862, by examination) he worked in Cardiff as the house surgeon to the town's infirmary. Afterwards, he became a physician there, and on retiring, a consulting physician. In addition to his own large practice, he worked as a poor-law medical officer. Then he became a poor-law guardian and chairman of the board of guardians. *Cardiff Times*, 27 January 1894. WNP.

³² T. W. Rammell, *Report to the General Board of Health on a Preliminary Inquiry into ... the Sanitary Condition ... of Cardiff.* (London, 1850).

³³ Henry J. Paine, 'Cholera and other zymotic diseases in their relation to sanitation', *BMJ*, 29 August 1886, 381-6.

³⁴ Medical Officer of the Privy Council. Ninth Report (1866) volume 37, pp. 94-8. BSP.

³⁵ T. J. Dyke, 'Who shall be the Medical Officer of Health?' *BMJ*, 3 May 1873, 488-9; <http://www.measuringworth.com/ppower/>

³⁶ T. J. Dyke, 'The work of a medical officer of health and how to do it.' *BMJ*, 16 November 1872, 543-5.

³⁷ Royal Commission to inquire into the operation of the Sanitary Laws in England and Wales, (1868-69), volume 32, pp. 645-648. BSP; *The Sewage Question from Dr Letherby's Notes* (London, 1872), pp. 28-9.

³⁸ *The Times*, 4 April 1872. TDL. Disraeli ascribed the saying to a king who had lived 300 years previously. The words were his own. Humphry Rolleston, 'Lay pioneers in the Common Health', *Canadian Public Health Journal*, volume 39, January 1939, 1-3. JSTOR.

³⁹ *BMJ*, 19 July 1873, 65-6.

⁴⁰ *Ibid*, 4 May 1878, 667.

⁴¹ Fifteenth Annual Report of the Local Government Board, 1885-86. Supplement containing reports and papers on cholera, (1886), volume 31, p. 126. BSP.

⁴² West Glamorgan Record Office, U/G RSA1, 21 December 1872, 15 February 1873, 10 May 1892.

⁴³ Reports and Papers on Port and Riparian Survey of England and Wales 1893-94, (1895) volume 52. BSP; D. T. Richards, *The Port Health Service*, pp. 56-61. <https://www.ncbi.nlm.nih.gov/pmc/articles>.

⁴⁴ *Cardiff Times*, 2 November 1866. WNP.

⁴⁵ *The Lancet*, 6 March 1869; *Evening Express*, 1 September 1905. WNP.

⁴⁶ This sum compared well with the salary of £450, which included travelling expenses, given by the Carmarthenshire County Council in 1910. *The Carmarthen Weekly Reporter*, 7

October 1910. WNP. In that year, the salary for the corresponding post in Breconshire was £500, with no additional allowance for travelling expenses. *BMJ*, 10 October 1910.

⁴⁷ *Medical Officers for the Counties* (1904), volume 82, pp. 13, 14. BSP.

⁴⁸ *British Medical Journal*, 23 February 1895, 428-9.

⁴⁹ *South Wales Echo*, 13 June 1896. WNP.

⁵⁰ Francis John Allan, *Five Years of Public Health Work 1886-1891* (London, 1891).

⁵¹ *The Times*, 18 February 1911. TDL.; Williams's parents were John (c.1820-?) and Margaret (.1826-?) of Esgair fawr farm, near Dolgellau. 1871 census, RG10/5691; *The Medical Register* (1891), p. 1213; *Western Mail*, 25 November 1892. WNP; *BMJ*, 13 July 1895, 74-5; *Cambrian News and Meirionethshire Standard*, 27 January 1893. WNP.

⁵² Williams married Margaret Morris, the daughter of William Morris, Cambrian Establishment, Barmouth, in 1893. *South Wales Daily News*. 6 October 1893. WNP.

⁵³ John Glaister, *A Textbook of Public Health*, second edition (Edinburgh, 1910), pp. 6-11; Edward Smith, *Manual for Medical Officers of Health* (London, 1874), pp. 1-2.

⁵⁴ *BMJ*, 25 February 1911, 470.

⁵⁵ *Annual Report of the County Medical Officer for the year 1896*. (Cardiff, 1897).

⁵⁶ *Cardiff Times*, 24 July 1897. WNP.

⁵⁷ *Ibid*, 14 March 1908.

⁵⁸ GRO, Glamorgan County Council, Sanitary Committee, G/C/PH, 28 April 1893.

⁵⁹ *British Medical Journal*, 25 February 1911, 470.

⁶⁰ *Ibid*, 11 January 1896, 88-9; *The Medical Register for 1907* (London, 1908), p. 1752.

⁶¹ Interim Report of the Royal Commission on the Treating and Disposal of Sewage, (1901) volume page XXXIV PT I PT II, pp. 524-9. BSP.

⁶² Irvine Loudon, 'Maternal mortality in the past and its relevance to developing countries today', *The American Journal of Clinical Nutrition*, 2000, 72 (suppl.), 241S-6S.

⁶³ William Williams, *Annual Report of the Medical Officer of Health for the year 1904. Glamorgan County Council* (Cardiff, 1905), pp. 123, 124, 125.

⁶⁴ For example, Thomas Chamberlayne, *The Compleat Midwife's practice enlarg'd* (London, 1659), EEBO; Jane Sharp, *The COMPLETE Midwife's Companion or the ART of Midwifry Improv'd* (London, 1671). Fourth edition (London, 1725). ECCO; William Smellie, *A Treatise on the theory and practice of Midwifery* (Dublin, 1764). ECCO.

⁶⁵ See, for example, NLW, Church in Wales records, Diocese of Bangor. Episcopal 1, B/SM4, *ibid.*, Diocese of Llandaf, Episcopal 2, LL/SM/9.

⁶⁶ NLW, Bathafarn & Llanbedr collection: 1940069: 422.

⁶⁷ Williams, *Annual Report* (Cardiff, 1905), p. 120.

⁶⁸ Charles J. Cullingworth, *The Obstetrical Society of London and its Examination for Midwives* (London, 1907), p. 3.

⁶⁹ Report from the Select Committee on Midwives Registration (1893-94) volume 13, pp. 14-20. BSP.

⁷⁰ Williams, *Annual Report* (Cardiff, 1905), p. 126.

⁷¹ *Weekly Mail*, 17 January 1903; *Cardiff Times*, 23 and 30 May 1908. WNP.

⁷² W. Williams, *Deaths in Childbed: A Preventable Mortality* (London, 1904.) The university's professor of physiology, J. B. Haycraft, had spoken on a Darwinian theme in 1894.

⁷³ T. G. Davies, *Deeds Not Words: A History of the Swansea General and Eye Hospital 1817-1948* (Cardiff, 1988), p.205.

⁷⁴ E. Colston Williams, *Glamorgan County Council. Report of the Medical Officer of Health for the year 1937*. (Cardiff, 1938), pp. 36, 39.

⁷⁵ Ministry of Health. Report on Maternal Mortality in Wales, (1936-37), volume 11, pp. 5, 33, 118. BSP.

⁷⁶ W. E. Thomas, *Annual Report of the Medical Officer of Health for 1947. Glamorgan County Council* (Cardiff, n.d.).

⁷⁷ George Newman, *Infant Mortality – a social problem* (London, 1906), pp. v, 328, 332.

⁷⁸ Sanitary Committee, 9 June 1893, 10 June 1895, G/C/PH, 12 July 1895.

⁷⁹ *Cardiff Times*, 24 December 1898, *Western Mail*, 10 March 1899. WNP; William G. Savage, *Milk and the Public Health* (London, 1912), pp. 78-9; *Veterinary Record* xi, (April 1899).

⁸⁰ *Western Mail*, 22 February 1899. WNP. A man of that name achieved some notoriety as a veterinary bacteriologist in America. Thomas Bowhill, *Manual of Bacteriological Technique and Special Bacteriology* (Edinburgh, 1899); Cardiff and County Public Health Committee. Annual Report of the Bacteriologist. GRO, GC/JL/1; *The Times*, 10 April 1961. TDL.

⁸¹ Alun Roberts, *The Welsh National School of Medicine, 1893-1931: The Cardiff Years* (Cardiff, 2008) pp. 51-2; *Weekly Mail*, 10 March 1900.

⁸² William Williams, *Report of the Medical Officer for the year 1905. Glamorgan County Council* (Cardiff, 1906), p. 51.