

Alexander Wood (1817–84)

The world remembers Alexander Wood as the co-inventor of the hypodermic syringe and needle in 1853. Wood developed the devices to enable him to give subcutaneous morphine injections for chronic 'neuralgia', something he described in a paper in the *Edinburgh Medical and Surgical Journal* in 1855, entitled 'A new method for treating neuralgia by the direct application of opiates to painful joints'. The fact that today we would not refer to arthralgia as neuralgia any more than we would give local injections of morphine for that type of pain in no way diminishes the importance of Wood's invention. Sadly his wife became the first person reported to die from an overdose of morphine by self-injection.

By a remarkable coincidence, Charles Gabriel Pravaz (1791–1853), a French surgeon who had neither met nor been in contact with Wood, reported his invention in the same year, 1853, and then died soon afterwards. Prior to both men's invention of the fine bore needle, others had used larger, cruder needles attached to tubing. The importance of Wood's and Pravaz's work was that needles could now be fixed onto syringes and smaller, measured doses injected, but years were to pass before the increased danger of infection was understood and sterilisation developed.

The Royal College of Physicians of Edinburgh honours Wood for his outstanding service to it. It would be no exaggeration to say that he served the College, which has had many great men as its President, as devotedly and with as much diplomatic skill as any before or since. In summary, Wood served as Secretary for six years and as President for three years; he was a member of the General Medical Council for 14 years and chairman of the working party looking at 'deprivation and misery in Edinburgh', which produced the 1867 report



FIGURE 1 Alexander Wood, by Sir John Watson Gordon (1778–1864). Watson, who was born, lived and worked in Edinburgh, was a student and friend of Sir Henry Raeburn, on whose death he became Scotland's leading portraitist. (Oil on canvas, 206 cm x 145 cm)

The condition of the poorer classes. The report estimated that there were 1,344 preventable deaths each year in Edinburgh, and led to the foundation of the Association for Improving the Condition of the Poor, under Wood's leadership. Recognising the need for a dynamic Medical Officer of Health for Edinburgh, Wood was among those who urged the appointment of (Sir) Henry Littlejohn.

Medical battles

Wood was not a man to shy away from confrontation. He led the negotiations for a new College Charter, took a very strong line on the role of the College after the 1858 Medical Act came into effect, and sought to ensure that the Clerk (the College's legal adviser) earned his fees through hard work – after demonstrating that that had not been the case for some time. He also argued strongly for the rights of the Edinburgh Extramural School of Medicine.

In another confrontation, Wood fought to prevent practising homeopaths from being Fellows of the College. Opposition to and scepticism about homeopathy were stronger in the 19th century than today. It came as a shock when a Fellow announced that he practised homeopathy; the College Council subsequently decreed that such practitioners could not remain as Fellows or be awarded Fellowship.

Dispute with the RCPL

Wood also stood his ground on behalf of the RCPE in a bitter dispute with the London College. There had long been confusion about the relationship between those universities that conferred medical degrees and the Edinburgh College. While the RCPE never wished, nor was permitted, to confer degrees, it nevertheless reserved the right to insist that only a Licentiate or Fellow might practice in Edinburgh. Some interpreted this as the College regarding itself as more important than a university and belittling degrees.

In 1859 the Edinburgh College approved of Regulations for the Conferring of the License, which appeared to make it possible for the RCPE to license doctors who had not graduated in medicine at a university. The London College foresaw the day when a young Edinburgh licensee might work in England and expect to be accepted by the London College, something they would not do. Seeing this as an insult to his College, Wood vehemently defended the Edinburgh position. He made a major contribution in clarifying both the importance to the College of doctors having medical degrees and the College's role in setting and maintaining the highest standards of medical practice. The result was that, after much to-ing and fro-ing of letters and delegations, peace was restored and the good name of the

Edinburgh College upheld (although the debate about the role of the College continues to this day!).

Financial pressures

As is true today, financial matters were seldom off Council's agenda in Wood's time as President. A law of 1815 had imposed a tax of £15 sterling when a doctor obtained a licence to practice, and one of £25 for the Fellowship. In 1859 the College pointed out to the Chancellor of the Exchequer, Benjamin Disraeli, that students and graduates were

finding it less financially taxing to study and be licensed abroad. Negotiations between the College (with Wood as President), the GMC (also led by Wood) and the government went on for a very long time, but at last the Chancellor agreed that stamp duty should be waived. Wood's patience and negotiating skills had won yet again.

Wood practised in the New Town of Edinburgh. There is no record of him having a hospital or academic appointment, his whole professional

life being spent in general practice. Sadly we know nothing of his personal or social life except that he loved golf.

Derek Doyle

Obituaries Editor, The Journal, RCPE

FURTHER READING

- College Minutes and archives, Library of the RCPE.
- *Oxford Dictionary of National Biography*
- Craig WS. *The History of the Royal College of Physicians of Edinburgh*. Oxford: Blackwell Scientific Publications; 1976.

Handwashing and hygiene: lessons from history

In 2000, the National Institute of Medicine in the US reported that hospital-acquired or nosocomial infections were responsible for 44,000 to 98,000 deaths per year at a cost of \$17–29 billion. In the UK, nosocomial infections are acquired by one in ten patients and cost about £1 billion per year. This unfortunate situation has evolved in recent years in spite of lessons from history regarding handwashing, hygiene and antisepsis.

In 1854, Florence Nightingale introduced sanitary methods including handwashing and reduced the rate of ward infections and death rates at the Barrack Hospital in Scutari.

During the 19th century, up to 25% of women died from puerperal sepsis (childbed fever) caused by *Streptococcus pyogenes*. In 1843, Dr Oliver Wendell Holmes (1809–94) suggested that puerperal fever was spread by the contaminated hands of medical staff. His recommendations had little impact on his colleagues at the time. Puerperal fever was thought to have been caused by chance or God and not by the dirty hands of health personnel!

In the same decade, Dr Ignaz Phillip Semmelweis (1818–65), a Hungarian doctor, pioneered antisepsis in maternity wards. In 1847, he was given a two-year appointment as assistant in obstetrics with responsibility for

the maternity wards. In a Viennese hospital, Semmelweis observed a marked difference in maternal mortality rates in patients under the care of physicians and medical students and those under the care of midwives. He also noted that physicians and students coming straight from the autopsy room to the delivery room had a disagreeable smell on their hands despite washing their hands with plain soap and water. He postulated that puerperal fever was caused by 'cadaverous particles' transmitted via the hands of staff.

Semmelweis ordered a mandatory handwashing policy for medical students and physicians using a chlorinated solution before examining women in labour. This resulted in a fall in maternal mortality to about 2%, with a further decrease to 1% after the introduction of washing medical instruments prior to use.

Semmelweis's work is now recognised as a landmark in the history of infection control, but, as with Holmes, his findings were not accepted at the time. His colleagues thought that the lower mortality was due to the hospital's new ventilation system. This opposition eventually forced Semmelweis to resign from his position. Ironically, he died in a public asylum of *Streptococcus pyogenes*. His ideas of hygiene were ridiculed during

his life, but absolved after his death by Louis Pasteur and Joseph Lister.

With proof of the germ theory as a cause of disease produced by Pasteur, Lister and Robert Koch, physicians acknowledged that germs could be the cause for the spread of infections. In 1879, Pasteur showed that *Streptococcus* was present in the blood of women with puerperal fever and announced: 'It is the doctor and his staff who carry the microbe from the sick woman to the healthy.'

Our knowledge of microscopic pathogens and the prevention of infectious diseases has grown exponentially since the early 19th century. Although guidelines by the Association for Professionals in Infection Control (1988, 1995) and Healthcare Infection Control Practices Advisory Committee (1995, 1996) on hand antisepsis with waterless antiseptic agents have been adopted by the majority of hospitals, adherence of healthcare workers to hand hygiene has been patchy. As the US Centers for Disease Control and Prevention conclude: 'Handwashing is the single most effective way to prevent the transmission of disease.'

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