

to just two people, a fellow consultant and his hospital manager), journalists and newspaper editors (and well done the *Times* for serialising an abridged version in the late summer). Indeed, the College might send a complementary copy to my old friend from John Radcliffe days, Sir Nigel Crisp, the Chief Executive of the NHS – I am quite certain he will read and be influenced by it.

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The life and times of William Withering: his work, his legacy

By Peter Sheldon. Brewin Books, Studley 2004. 272pp. £19.95.

In 1785 Dr William Withering of Birmingham published *An account of the foxglove and some of its medical uses with practical remarks on dropsy and other diseases*. It has rightly given him lasting fame. Dropsy was the name used then for oedema, ascites and pleural effusion before cardiac, renal and hepatic failure were understood. The book was a model of clinical science, describing in careful detail the results of treating dropsy with digitalis, and placing that drug firmly on the therapeutic map. Plants are the origin of over 30 major drugs. In some cases the drug is actually in the plant such as with the vinca alkaloids, but in others the plant compound is the basis of a synthetic derivative. This is the case with amiodarone, which comes from an Egyptian herbal medicine. But how were the medicinal plants identified in the first place? In some cases the answer lies in a folk remedy. This was certainly the case with the foxglove, *Digitalis purpurea*, and Withering made an inspired identification of the plant together with scientific studies of its use, all carefully described by Peter Sheldon in this new account of Withering's life and work. Sheldon is a fellow of this College, as was the author of the 1950 life of Withering, KD Wilkinson. This most recent book opens with five chapters on Withering's life, covering his early years, his medical student days at Edinburgh, his work as a physician in Stafford and Birmingham, and finally a chapter each on Withering the botanist and Withering the mineralogist.

In 1775, Withering chanced to hear that a woman herbalist in Shropshire had been successful in treating dropsy when regular practitioners had failed. He learnt that her recipe contained over 20 herbs and that it produced violent purging and vomiting. In a memorable phrase he said that 'it was not very difficult for one conversant in these subjects to perceive that the active herb could be no other than the foxglove'. It was his detailed knowledge of plants that enabled him to know from the side effects that the foxglove was the active ingredient. In fact, from a botanist's point of view, Withering's fame would lie with his fine two volume work in 1776 on British plants – the first book in English to use the new binomial naming system recently introduced by Carl Linnaeus and in use unchanged to this day. Happily a genus of the family Solanaceae has been named *Witheringia*.

Withering did much more than just identify the foxglove as a treatment for dropsy. By careful observation and experiment he worked out the correct dosage, and his preparation of the dried leaves was still in use 150 years later. In Withering's time practically

nothing was known about cardiac arrhythmias and he was certainly unaware that dropsy could be due to cardiac failure. So when he made the arresting comment that 'it has a power over the heart to a degree yet unobserved in any other medicine', he was referring just to the bradycardia it produced. Sheldon has helpfully transcribed Withering's own descriptions of 156 cases treated by him between 1775 and 1784 and he gives details of the 15 patients in whom mention was made of the pulse. Just one was said to be irregular, and usually it was described as either feeble or quick and feeble. It was that great general practitioner Dr James Mackenzie who showed around 1900 that digitalis worked best when heart failure was associated with the irregular pulse which would later be shown to be atrial fibrillation.

Withering had a poor opinion of most herbal remedies and, in a phrase with relevance to the current craze for largely untested plant medicines, wrote that 'the superstition of former ages, operating upon the ignorance of mankind, gave rise to miracles of every denomination... and at length every common plant was esteemed a cure for almost every disease. We shall sooner attain the end proposed if we take up the subject as altogether new and build only upon the basis of experiments well conceived and accurately executed'. He has been called one of the first British scientific physicians.

Less well known is Withering's expertise as a chemist and mineralogist. He analysed the chemical content of rocks near Stafford where he first worked as a physician, and also was the first to identify barium carbonate (named Witherite by a German mineralogist). This work led to his election to the Royal Society.

Having dealt with Withering's life and work, Sheldon then goes on to describe the times in which he lived. There is a lengthy chapter on Withering's contemporaries, men he never met such as Clive of India and John Coakley Lettsom (to whom Sheldon devotes ten pages). Another chapter is on Britain and the world in the eighteenth century.

Withering became a member of the remarkable Lunar Society in Birmingham, a group which became an intellectual powerhouse of the time. Its members included Joseph Priestley, James Watt, Matthew Boulton and Benjamin Franklin, and they were united by a love of science and experimentation. Ten became fellows of the Royal Society. They have been described as men who changed the world and it would have been good to have heard more about them and their society in this book.

A final chapter describes how digoxin was isolated in 1930 at the Wellcome Laboratories by Sydney Smith, and also includes an assessment of the present position of digitalis therapy. The account of how to manage toxicity of cardiac glycosides would have pleased Withering, who constantly warned against overdosage. This is the only chapter written in technical language; all the others explain medical aspects to the layman.

Pioneers are soon forgotten and I doubt if more than one in twenty newly-qualified doctors would know who introduced digitalis into clinical medicine. This book is a very welcome new account of the life and work of an outstanding British physician who might be described as our first clinical pharmacologist. It will bring his name before a new audience and it will be appreciated by non-medical readers.

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