

More harm than healing

The commonplace assumption that pre-evidence-based medicine amounted to little more than harmless quackery is challenged in a book by historian David Wootton.

Neil Hallows delves into the suspect world of bloodletting and metal pointers

'Medicine used to be simple, ineffective and relatively safe. It is now complex, effective and potentially dangerous'. The eminent medical academic Professor Sir Cyril Chantler's pithy summing up of medicine past and present is widely quoted, and brings to mind the earnest herbalist and his harmless, mildly laxative collection with the odd gem like *digitalis* among them.

But a new book puts forward a radically different view. It cites plenty of medicine that was simple and ineffective. But relatively safe? No, doctor, no. In fact, it argues that, for most of the last 2,300 years, medicine has done more harm than good.

On this point, the York University historian David Wootton is explicit. He told an audience at the Cambridge History Festival in August: 'The problem about medicine up until the middle of the 19th century is that they had powerful therapies but they were powerfully bad for you, and neutral therapies would have been better for you. Homoeopathy would have been better for you.'

Professor Wootton says medicine was a 'fantasy technology' in which doctors thought they were doing good but were not. His book, *Bad Medicine: Doctors Doing Harm Since Hippocrates* sounds a little like John Cleese affirming and reaffirming the death of his parrot on this point. It says medicine was 'a ritual, a rite, a performance, a show ... an age-old pretence' that doctors could actually cure, rather than merely reassure, their patients.

He argues that discoveries that could have accelerated greatly medical progress were forgotten, misinterpreted or wilted in the face of professional opposition. His book looks at the time lags between a first discovery of a potentially new medical treatment and its application.

The author writes of medical practices that, in some ways, survived unscathed from Hippocrates through to the 19th century. A good example was bloodletting.

Excess fluids

For more than 2,000 years, doctors were wedded to a concept of the human body that said one should manage the conduct of daily life — meaning the right amount and type of food, drink, exercise and sleep would promote good health. When disease set in, doctors should counteract excess or deficiency — exercise for someone who rested too much, a diet for someone who ate too much.

If this sounds like the recent white paper on public health, read on. There was also a very strong belief that 'excess' fluids could be eliminated from the body by inducing vomiting, inducing diarrhoea or, most commonly, by letting blood. Bloodletting was taking place before Hippocrates (c 460 to 375 BC); it remained a common medical treatment into the 19th century, and was even used to a limited degree during the First World War. For someone who was already ill, it was neither a safe nor neutral treatment to lose pints of blood over a short period of time. Over-enthusiastic bloodletting may have led to George Washington's death in 1799.

Bloodletting was only one therapy but others were no more inspiring. Professor Wootton said in Cambridge: 'If you draw up a list of effective medical technologies that actually serve to extend life or reduce pain before the middle of the 19th century, that list is going to be incredibly short, so short it has no significant effect on life expectancy.'

The list would definitely have included vaccination for smallpox, which was introduced in 1796, and doctors from Hippocrates onwards were able to treat internal fractures and dislocated shoulders. But he added: 'Even if everyone would have had access to a doctor in 1850, even if everyone could have afforded the very best medical care, that would have made no difference, because there were very few successful techniques, and those techniques were for marginal conditions — gallstones for example.'

The list may not even have included *digitalis* — one of the ‘darlings’ of medical history — because it seems such a good example of a longstanding medical treatment. It certainly has been used for centuries, and there is a famous account from 1785 reporting its effective use in the treatment of congestive heart failure (then called ‘dropsy’), but in his book Professor Wootton writes: ‘In practice *digitalis*, once it had established itself in the pharmacopoeia, was soon being used to treat a whole host of diseases and was often not used to treat dropsy — bad knowledge had once again driven out good.’

This battle between good and bad knowledge, and the resulting time lag between discovery and application, is perhaps clearest in the study of micro-organisms.

In the 1670s, the Dutch researcher Antoni van Leeuwenhoek made a series of simple microscopes and discovered a whole world of micro-organisms. He found them in canal water, ginger, the dirt between his toes, almost everywhere he looked. He also saw red blood cells and spermatozoa. In other parts of Europe there was something of a craze for the new technology.

But the craze only lasted another couple of decades and the microscope was not used again as a serious research tool until the 1830s.

The traditional view is that microscopes simply were not up to the job until then, but Professor Wootton says recent research shows Leeuwenhoek’s microscopes were of a very high standard, if rather awkward to use.

He puts the disappearance instead down to professional opposition, quoting the doctor and philosopher John Locke, who argued that God had adapted our senses to our needs, implying that, if our enemies really were so small, we would have been given the power to see them unaided.

While Locke’s opposition was religious, Professor Wootton tells *BMA News* that, in general: ‘doctors saw no need to rethink their understanding of disease because they thought the traditional account was fundamentally adequate.’

But just because doctors thought they were doing good, why did their patients so often think the same? How did medicine’s reputation survive for more than 2,000 years?

The author gives a number of reasons for why doctors appeared to be doing good. Two of them seem obvious but were not discussed in print until the 19th century.

First, there was the fact that many diseases were self-limiting and doctors were trying to achieve what the body’s natural healing processes were also trying to achieve. The book says the first study of this subject was 1835.

The second was the placebo effect. Credit for this is given to an English physician John Haygarth, who is more famous for studying the spread of smallpox. In his book of 1800, *Of the Imagination as a Cause and as a Cure of Disorders of the Body*, he set out to debunk the claims of an American, Elisha Perkins, who was selling a set of metal pointers he said ‘drew out’ a range of diseases.

The so-called Perkins tractors were briefly but enormously successful in Bath, where Haygarth lived. Haygarth set out to show he could also obtain remarkable cures with pointers of different materials. He said it showed ‘what powerful influence upon diseases is produced by mere imagination’. The cure, he argued, was the result of the demeanour of the doctor and the credulity of the patient. He went on to argue that his experiment demonstrated why a famous doctor was often more successful in his practice than someone without such a reputation, and why a new medicine was often more successful when it was first introduced.

Professor Wootton writes: ‘The genie was out of the bottle. If the placebo effect could explain the success of Perkins tractors and of homoeopathy, what part of orthodox medicine was based on a similar delusion? Haygarth’s importance lies in the fact that he was the first to ask this question.’

Another obstacle that made it hard to see that medicine was not working was that for centuries a disease was seen merely as a disorderly condition of a particular patient, not a typical condition of many patients. Only when this could be grasped, could doctors be confident they were comparing like with like both in terms of diseases and treatments.

But the comparing of treatments was beset with ethical difficulties. Professor Wootton argues that doctors, on the whole, thought their remedies worked, and so to give a different remedy, or no remedy at all, would mean they were not doing their best for a particular patient.

It was only when doctors found ways to count and compare that some of the huge advances were made. The history of clinical trials has a tragi-comic air, including a doctor who proposed unsuccessfully that bloodletting be compared to his own preferred treatment for most diseases — swallowing mercury.

The author lets James Lind keep the credit for being the first medical doctor to conduct a clinical trial. Aboard *HMS Salisbury* in 1747, he famously took 12 sailors suffering from scurvy and split them into six groups. Only the two who were given oranges and lemons were cured.

But Lind appears to have never conducted another trial in which therapies were compared directly against each other, and he lost faith in his lemons, having tried to repeat the treatment but making the fatal error of boiling them and destroying much of the vitamin C. Two decades after the famous clinical trial, there is an account of how he was treating his scurvy patients. He used the same treatment he gave to a 'lunatic' and a woman in labour — bloodletting.

It was only when there was a systematic approach to statistics that progress could be made. Against a background of somewhat discredited heroes, John Snow's genius shines all the brighter. In 1854, with an associate, he set out to visit every house in London where there had been a fatality in a recent cholera outbreak and establish which company supplied the water.

He found the death rate in houses supplied by one water company was 14 times greater than those that were supplied from another. After another outbreak, he also compared the death rate among people who took their water from the infamous Broad Street pump in Soho, and those who lived near it but got their water from other sources.

It was in 1866 that Snow's findings were comprehensively accepted. A year before that, Professor Wootton says there was a discovery of such shattering importance that he describes it in his book as the 'moment when real progress began in medical therapy'.

Towering figure in medicine

He is referring to Glasgow surgeon Joseph Lister's use of antiseptic for the first time in surgery. The results were dramatic — his post-amputation death rate fell from 45 to 15 per cent, and for the first time there were surgical procedures from which patients had a reasonable chance of recovery.

Lister is not only a towering figure in medicine but also a good example of the author's theme that developments could have happened earlier.

Lister said he was applying the principles of the 'germ theory of putrefaction', which said that invisible living organisms were the cause of decay, and those invisible organisms were easily transmitted and landed just about everywhere.

He was of course absolutely right. But for centuries there had been a rival theory that said decay was a chemical process and microbes were spontaneously generated as a side-effect of the decay.

To believe that infection could be prevented, one had to be coming from the position of germ theory. If the microorganisms simply appeared from nowhere, there was little one could do. Professor Wootton argues that the spontaneous generation theory could have been scotched long beforehand.

In 1707, a French scientist demonstrated that microorganisms did not develop in a water and manure mixture that had been boiled and then sealed. There were versions of this experiment for the next 150 years, including an important refinement in the 1830s that meant what the author calls the 'intellectual principles' for antiseptic surgery were in place. It was still necessary to discover a suitable antiseptic — Lister initially chose carbolic acid — but the author says there were many suitable candidates once one started looking.

So the author says it is reasonable to say there could have been an 'early 18th-century Lister'— implying that antiseptic surgery could have begun more than a century earlier.

And there is a remarkable link between Lister and the other discovery the author regards of the most fundamental importance — that of antibiotics. He established in 1872 that a growth of *penicillium glaucum* would kill off bacteria in a liquid of culture, and in 1884 a patient of his was treated with *penicillium* and cured of an infected wound. The author writes that Joseph Lister lacked the energy or the resources to promote the use of *penicillium*, in part because he was still struggling to win acceptance for the principle of antiseptic surgery.

It is difficult to imagine the number of people who would have benefited from antibiotics had they been introduced a couple of generations earlier than 1941, when commercial production began following the work of Florey and Chain. Just think of all those infected wounds in the First World War.

Professor Wootton tells *BMA News*: 'If he had stuck [with his work] I can't see why decent antibiotics should not have been available in time (if one may so put it) for the First World War.'

The biggest criticism of Professor Wootton's book is perhaps not what is in it, but what has been said on its behalf. The publisher's publicity that announced the book said: 'Over and over again major discoveries that could save lives were met with professional resistance ... bad medical practice has often been deeply entrenched and stubbornly resistant to evidence'.

And as an example, it said it took more than a decade for the evidence that smoking causes lung cancer to be accepted. The story in the book is rather different. In fact it says both the Medical Research Council and BMA were very quick in embracing Richard Doll and Austin Bradford Hill's work. It was the government, not the profession, that was slow in acting — although it accepted the link between smoking and lung cancer in the 1950s, it took until the 1970s for it to carry out simple measures such as putting warnings on packets.

Professor Wootton does say the profession should have been quicker in accepting that smoking was an addiction, rather than simply a habit, and often very difficult to give up — Doll himself thought that, once the evidence was out, large numbers of people would simply do the logical thing and give up.

But this is very different from the suggestion that the profession turned its back on the link between smoking and cancer. The problem is that some will get no further than the publicity surrounding the book and assume the smoking issue to be another example of doctors digging their feet in, when it was one of medicine's finest hours. The chapter on smoking is the last in the book, and there is little focus on medicine as it is now.

So does the author think medicine now has the right foundations in place? There are, after all, very many good clinical trials, more ways of sharing information than ever, and organisations such as the royal colleges and National Institute for Health and Clinical Excellence to promote it.

Professor Wootton says that, of course, medicine now has many opportunities to do good that it lacked for most of its history, but that it is not very difficult to find recent examples of bad medicine. He cites a *Guardian* article (August 12, 2006) that says while magnesium sulphate has been used to reduce the risk of eclampsia since 1906, its position as the best treatment was only established in 2002.

And while Professor Wootton makes no mention of a certain Harold Shipman — his book is about bad medical practice, not bad individual doctors — one can only speculate about whether the statistical approach that found the source of cholera, if turned upon mortality rates, could have also established rather easily that a single GP had an enormous number of patients die under his care.

The author is keen to stress he is not anti-doctor. His daughter is a doctor and he says doctors have saved his life twice — a dramatic way to describe an appendectomy and treatment for a compound fracture — but he is making the point that two centuries ago he would almost certainly have died from either one.

Above all, perhaps the book is not about attaching blame but a warning to us all that genius is not just a rare thing but also very fragile. We may hope that, when it comes along, it shines so bright that bad practice simply withers before it, but brilliant ideas can just as often quietly disappear.