# Scots who made their mark on.....

## *Medicine 1 : Lind and Simpson*

## James Lind (1716—1794)


Lack of vitamin C causes scurvy which damages connective tissues — famously deduced by the British Navy in the late Eighteenth century which started giving lime juice to sailors, under the direction of Scots pioneer of naval hygiene James Lind. "Vitamins" were at this time unknown.

Edinburgh born Lind entered the Navy in 1731 as a surgeon's mate and served in the Mediterranean and on both sides of the Atlantic. The scourge of scurvy was brought into terrible focus followed the voyage round the world by Admiral George Anson (1740-4) during which 80% of the seamen in his fleet of eight ships died, most (apparently) through contracting the disease, which became more of a potent enemy than France or Spain in terms of killing British tars. It was already known that citrus fruits had antiscorbutic effects and Lind now undertook a systematic survey of their properties, his being one of the first clinical experiments in medicine. He examined how six different groups of scurvy-ridden sailors responded to variations in treatment, all being fed the same but some being given cider, others sulphuric acid or vinegar or seawater, some oranges and lemons and yet others barley water with a spicy paste. The results were remarkable with the group taking citrus supplements improving very quickly.

On retirement, Lind wrote two treatises on the health of sailors, the first in 1753 and when Lieutenant James Cook set out on his first voyage around the world in 1768, the influence of Lind's work began to show as he carried a series of foodstuffs incorporating different amounts of what we now call vitamin C. The British Army also took cognisance of Lind's work in their North American campaigns providing their men with mustard and cress seeds. Others developed Lind's work including Scots naval surgeon Archibald Menzies in the Pacific.

Almost two hundred years after Lind's first control experiment, English chemist Sir Norman Haworth (1883—1950) was awarded the Nobel Prize in 1937 for his ground-breaking work on vitamin C. First working at St Andrews University he became interested in carbohydrate chemistry and he specialised on sugars, in particular working on the structural features of disaccharides, (such as sucrose, the chemical name for common caster sugar), a particular form of carbohydrate. The commercial synthesis of vitamin C, following Haworth's work enabled it to become a food additive.


GB 1977 showing the molecular structure of ascorbic acid and a cross section through an orange

## Sir James Young Simpson (1811—1870)


Scottish doctor James Young Simpson made a very important advance in surgical procedure when he introduced the use of chloroform in anaesthesia. Simpson made his discovery in November 1847 whilst trying out various chemicals in his dining room to see if any had anaesthetic potential. He was later knighted for his services to medicine.

Born in Bathgate to an impoverished and large family—he had seven siblings—Simpson entered the University of Edinburgh when only 14 and graduating seven years later was soon appointed to the academic staff where because of his youth he acquired his middle name as a soubriquet. Aged 28 Simpson became Professor of Midwifery at the university and in the fight to counter the widespread puerperal sepsis which caused so many neo-natal deaths he introduced several innovations to obstetric practice including improved forceps, specialist midwives and anaesthesia. He became something of a society celebrity attracting the illuminati to his Edinburgh townhouse and an obstetrician sought by wealthy women, his clients including Queen Victoria.

Anaesthesia had first been introduced by Sir Humphry Davy (*Surinam 2009*) at the turn of the century in the form of nitrous oxide (aka laughing gas, because a side effect of its use is euphoria). Davy and friends had used the chemical for recreational reasons—on occasions putting himself in some peril—but it was of limited use on patients because it irritated the bronchial tubes. Simpson followed the established practice of experimenting with new substances on himself and fellow professionals and on inhaling chloroform early in November 1847, they discovered its euphoric properties also and then passed out ! Simpson could well have perished in the process but by good luck he had taken just enough to anaesthetise himself yet not kill him. After initial resistance to a major change in obstetric practice the use of chloroform became an accepted part of childbirth and its employment during the birth of Prince Leopold to Queen Victoria in 1853 helped to popularise its use. On his being knighted, Simpson had the motto *Victo Dolore* included in his coat of arms: he had indeed "defeated pain".


*Lind Transkei 1993 and Simpson Transkei 1992*