The Paranoia of Pioneer Anaesthetists - Stories from the Early Days of Anaesthetic Practice

by

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I don't know if today is a good or bad day, because there are not many anaesthetists here to check on my facts and if you go to sleep, there are not many people to thump on your chest or kiss you four times to revive you. I spend all my week putting people to sleep but tonight's challenge is to keep you awake. The story of the beginnings of anaesthesia and those who performed them is so fascinating that it will be entirely my fault if you drift off.

Oliver Wendell Holmes suggested the word anaesthesia; Dean of the Harvard Medical School in 1846 and from there on this dramatic story became one of scorn, bitterness, sadness and lack of communication. There are three heroes, two American dentists, Horace Wells and William Morton and a Scottish obstetrician James Simpson.

Up to the middle of the nineteenth century the two obstacles for the advancement of surgery were infection and lack of anaesthesia. This seems strange when we know that Shakespeare knew about anaesthetics. In 'Romeo and Juliet' Friar John gives Juliet a vial and bids her: *Take though this vial and this distilled liquor drink; when presently, through all thy veins shall run a cold and drowsy humour.* Later he says, *And in this borrowed likeness of shrunk death thou shalt continue two and forty hours and then awake.* This is a long anaesthetic, even for today's neurosurgery, but what better description of anaesthesia could there be than *This borrowed likeness of shrunk death.*

Life without anaesthesia is awful to contemplate. To undergo an operation then was only marginally better than death or permanent disability. Prior to the 1840's the main substances available for anaesthesia and analgesia were strong alcohol, mandrake, belladonna, hashish and opium. In the 13th century, a monk Theodoric gave pre-operative instructions. Keep awake for 24 hours, not difficult in those days. He made a hypnotic mixture which he called 'Spongia Somnifera'. It contained *Opium, Juice of Hemlock, Mandrake root. Wood Ivy, Dock Seeds and a pennyweight of wax from a dog's ear...Mix with water, soak on a sponge and boil for as long as the sun lasts. Inhale for fifteen minutes.* References to this mixture, or variations of it, turn up again and again through the centuries.

As an enthusiastic student I agreed to help a colleague collect these ingredients in order to do our own experiments. After months of preparation, including visits to Kew Gardens, skirmishes with the constabulary and a traumatic visit to the Battersea Dog's Home, the fateful day arrived. My friend inhaled and I was ready to check

the depth of analgesia with my scalpel but he wouldn't allow me to touch him. Though he had widely dilated pupils he was still able to walk...straight to the George where more efficient sedatives were available. We concluded that the sun hadn't shone long enough on that November day in London. However I did read further and noted in an 18th century reference that it was abandoned because in some cases it leads to brain softening, convulsions and even death. I am pleased to say that my colleague became a Professor of Anaesthetics.

I want to consider a few characters who made contributions before proper anaesthesia began. Philipious Orelis Theopastis Bombastis O'Connery, born 1493.he wisely changed his name to Paracelsus, after the first century physician. He documented the effects of ether, which had been used for a century, for cooling and expectoration. He didn't adhere to bedside manners and stated that most physicians were deceitful; that their training was poor and that students would learn more from witches and gypsies. He led a tempestuous life. He was responsible for the idea that goitre was associated with lack of iodine.

Joseph Priestly was born in 1730 and lived in Yorkshire. He was a Puritan, a chemist and a doctor of laws. He was the discoverer of oxygen and carbon dioxide. He lived next to a brewery, hence his interest in fermentation. He was not popular in his local Yorkshire community. He preached disbelief in the Trinity and supported the French Revolution and the Independence of America. So, it was hardly surprising that he had his house and laboratory burnt down and he was forced to escape in disguise to London and then America, where he joined Benjamin Franklin.

Also around that time was Charles Waterton. He was an English eccentric, a botanist and an ornithologist, who brought back curare from South America. He lived in Walton Hall, which is now a maternity hospital in Yorkshire. It stands on an island, or it did, in a lake surrounded by a beautiful park. He made the park into a bird sanctuary and he would catch his breakfast fish by shooting them with a bow and arrow, so the birds would not be frightened. After his beautiful wife died, he never went to bed again but slept on the floor with a wooden pillow. Not surprisingly, he arose at 4am every morning to attend his hobby of taxidermy. He bled himself regularly, rarely changed his clothes and lived to the ripe old age of 85. His life was nearly shortened by an attempt to fly using large wings he designed himself. He was about to jump off the turret, when his butler, it is recorded, advised him to delay the jump as his breakfast was ready. His first of three

voyages to South America was in 1812. He describes blowpipes, darts and arrows with poison tips. He observed how large animals could be paralysed from one hundred paces. He made detailed observations of different animals which were affected by the poison called wureley. In 1825, he described the elaborate preparation, storage and details of the poison made by the Makushi Indians.

He brought the poison back with him and tried it on his donkey. He injected it with wureley which contained curare. The beast died. The second donkey was injected under a tourniquet. Nothing happened until the tourniquet was released. The beast died within ten minutes. Fortunately he had a third donkey, a she-ass. When, after 10 minutes she stopped breathing, he made an incision into the trachea and inflated the lungs with a bellows until the effects wore off. It wasn't until the 1940s that curare was clinically used for paralysing patients. Its derivatives are in daily use today.

Humphrey Davey born in 1780 was a Cornish man who became a distinguished chemist. When he was seventeen he gave wild parties where he shared nitrous oxide with his guests. It was he who called it Laughing Gas. The book he published on its manufacture and effects is very large and makes the statement that it could be used for surgical operations. He noted that pain from a tense boil on his bottom was diminished when he inhaled the gas. At this time doctors were desperate for some means of relieving pain for operations. No notice was taken of this experiment and Davy didn't pursue the idea. The use of nitrous oxide in anaesthesia, despite pleading letters from Henry Hickman, a GP, who was using carbon dioxide, was ignored. It was not until forty-six years later that anaesthesia was invented.

Another method tried at that time was arterial pressure with a carpenter's clamp on the upper arm, or leg, for one hour pre-operatively. This was abandoned because of tissue damage and pain. In the 19th century, Mesmer introduced and popularised hypnosis in Vienna and Paris. The medical profession did not like him, as he ran an advertised and very well attended show, with flashing lights and elaborate sets. He dressed in a purple suit and wore rose coloured specs. He made his lady clients act foolishly. Only a small group of people are good deep trance subjects and can be managed throughout an operation. Dr. James Esteril used mesmerism successfully in India. He reported three hundred and fifty successful surgical cases. He came back full of enthusiasm to Scotland, where he found that it did not work on native highlanders.

Horace Wells, a dentist from Connecticut, educated appropriately at a place called Bellows Creek, invented a dental frame for false teeth. As the teeth had first to be pulled, he was in need of a suitable anaesthetic. On December 11th, 1844 he persuaded his partner to give him nitrous oxide to extract a painful tooth. He was amazed at its effectiveness. In January 1845, he was invited to give a demonstration at Massachusetts General Hospital. The chosen patient was a man who had shot himself in the leg. The wound had become gangrenous and his leg needed to be amputated. The show was all set but at the last moment the patient got cold feet, or should I say, cold foot. A replacement was found, a heavy student with a tooth that needed extracting. Wells gave the student nitrous oxide but he did not administer it for a long enough time, and the patient woke up during the extraction and yelled. The demonstration was a failure. Though the student had not in fact felt any pain, Wells was booed out of the theatre as an impostor.

Being a retiring, shy man, Wells was overwhelmed by his failure. Disappointed, he returned home and continued to experiment on himself. All these pioneers experimented on themselves. Wells' dental practice never really recovered. He abandoned dentistry and tried selling shower roses which he had invented, before joining Barnum's Circus, with a troupe of performing canaries. He wasn't successful, his audience preferred to see freaks and fat women. He went to France to recuperate and was given an award by the President of France. He returned to New York and continued experimenting with nitrous oxide, ether and chloroform, to which he became addicted. He was asked by a casual friend in New York to help him get even with a prostitute who had refused his advances. Wells agreed, threw acid on her clothing but one drop hit her neck. She cried out and Wells was arrested. Instead of being taken straight to prison, he was allowed home to collect his belongings. He took a pencil and paper, some chloroform and a cutthroat razor. That night in prison he wrote a note to his wife apologising for what he had done, inhaled the chloroform to make himself drowsy and used to razor to sever his left femoral artery. He died. It was very sad end.

The next character we find is William Morton. He was entirely different. He was a dentist who had been a student and partner of Wells. He was aggressive, ambitious and keen to make his fortune. He moved to Boston and became a medical student. He was determined to find a stronger agent for inhalation anaesthesia. He discussed this with Dr. Jackson who was a Consultant Chemist and Physician at

the Massachusetts General. Jackson had been using ether for cooling skin and expectoration. He gave a bottle of ether to Morton who experimented on his dog before trying it on a patient for the removal of a tooth. On September 30th, 1846 Morton successfully demonstrated the giving of ether for the removal of a small tumour of the neck. The operation was painless and the demonstration a success. He tried to disguise the ether by adding perfume and named it Lethoran. This fooled nobody. He finally admitted that it was ether and patented it with the help with the help of the New York law firm, Messrs. Love and Love. He also tried to discredit Wells. Jackson now demanded that Morton give him $500 and 50 percent of sales. The fight between them became national. They both asked Congress for $100,000. Morton sued the Army for using his patented ether, but lost the case on the basis that ether, being readily available, could not be patented. Morton was an expert publicist. He employed a journalist called Gary Romilly to help him publicise ether. He paid his fare to England where Romilly's articles soon made the news widespread.

The story of anaesthesia is really the story of pain relief. Today, we unhesitatingly avoid pain. There are few women who would suffer a painful labour rather than accept analgesia. Our ancestors had no choice; they had to suffer. They were told that God wanted them to suffer. To some extent that was a consolation. On both sides of the Atlantic, in big hospitals, surgical operations only numbered 130 per year. They were performed with difficulty, without anaesthesia and were deplorable. Many operations were performed at home in appallingly unhygienic conditions. This was before Lister's aseptic technique. In 1846 Gary Romilly described an operation at University College Hospital as follows.

> *Robert Liston, a professor at the University College Hospital is the surgeon. 6ft.2, built like a colossus, strode into the crowded operation theatre which was adjacent to the post-mortem room. He was about to remove a tumour of the right breast. He discarded his frockcoat and donned an apron, stiff with old blood. He waited impatiently for the patient to be brought in. The woman was led in by two students and was rather startled by the audience. She allowed herself to be laid out on a wooden table, making an automatic, pathetic gesture of brushing down her skirt over her ankles. She was whimpering, her jaw quivering. The gown was loosened to expose the diseased breast. Two*

more students appeared to hold her down and fix straps over her lower chest and hips. Her left arm was held behind her head and her right fist was crammed into her mouth. The vain Lister said, 'Gentlemen. Time me.' The woman did not scream until the second incision. Blood poured from the wound, onto the sawdust floor. The tumour was dissected, removed and sutured with waxed hemp in five minutes. The woman's arms were limp. She had mercifully fainted. I had to leave the room.

A horrifying description you'll admit.

The steamship Lady Hawdon brought the newspapers from America. The news reached Hobart in June 1847, one hundred and twenty days after the first demonstration. The argument between Morton and Jackson was never resolved. Morton died of apoplexy in a hansom cab in New York. It is said that he heard someone mention the name Jackson. Jackson who prided himself on his intellect became extremely paranoid. He claimed to have invented electricity and Morse code. He died in a lunatic asylum.

On November 4th, 1847, James Simpson was searching for a liquid that could be inhaled, was less pungent than ether and less irritating to the lungs. He found ether unsuitable for his complicated obstetric cases. It was explosive, took a long time to work and caused vomiting, which was a big problem. At home he experimented on himself with different liquids which he had lined up in tumblers. On the evening of November 4th, 1847, at his home at 52 Queens Street, Edinburgh, (the house is still there, the dining-room preserved) he asked his guests to inhale chloroform. Immediately they were all filled with a sense of hilarity. They loved the aroma, their conversation became unusually intelligent and Simpson quite charmed his listeners. However three of them soon slid off their chairs and lay under the table, one of them kicking violently, where they lay snoring. Miss Petry, Simpson's niece cried, 'I'm a virgin. I'm a virgin.' (I'm not making this up). Mrs Simpson, entirely sober at the other end of the table, was alarmed at the ardour of the experiment, which led them to sniff late into the evening. The party continued late into the night.

The next day, Simpson called on Playfair, a pharmacist, and asked him to try out his chloroform. Playfair refused but said he'd try it on his daughter's pet rabbits. They died. That night at another dinner party, Simpson was more cautious. When the parlour maid had served the soup, Simpson tried it on her. She immediately became unconscious

and inconsiderately remained so for 3 hours. The guests, it is reported, served themselves for the rest of the meal. Simpson gave a lecture to the Medical Society in Edinburgh and even published the effects of chloroform. This was only four days after the first experiment. This contrasts today with the latest intravenous anaesthetic from ICI, which took 5 years to produce for clinical use at a cost of 356 million dollars. Although chloroform has its dangers, one would think that such a benefit to mankind would have been universally welcomed. The church, especially the Presbyterian Church, was against the relief of pain in childbirth. *In sorrow thou shalt bring forth children*, says the Bible in Genesis, 3, Verse 16. Simpson, who knew his Bible well, replied that God was the first anaesthetist when he put Adam to sleep before removing his rib.

A less than skilfully administered chloroform had a high mortality rate, so Simpson's guests were lucky to survive. He continued to use it widely for surgical operations and complicated obstetrics. The first mother who had an anaesthetic under chloroform called her daughter Anaesthesia. The church opposition continued for many years until John Snow gave Queen Victoria chloroform for the birth of Prince Leopold in 1853. He dripped it on a silk handkerchief stretched over a metal frame. *'Chloroform a la Reine'* it was called. Queen Victoria is recorded as saying she was greatly pleased, possibly even a little amused. The church modified its opposition, showing that ethics are always maintained until royalty intervenes. I've noticed that over thirty years of anaesthetics that the status of anaesthetists has risen. There is now no interference, no argument, just discussion with the surgeon, (well it may be heated) in a planned operation as to whether the patient is fit or not.

19th Century surgeons were overbearing, rude, unpleasant and unpunctual. They had always worked with subordinates. Jeffrey Kaye, who was internationally known and one of Australia's most famous anaesthetists, worked in the First World War. He said that there, surgeons preferred medical orderlies to give the anaesthetics because they could order them about. I worked in a provincial town in England, where the surgeons seemed to have their own way of doing things. I remember a gynaecologist who always arrived early for the list, in order to 'pop' in a spinal. He always overdosed his patients so much, that I spent my half-day off resuscitating them while he played golf.

There was an orthopaedic surgeon who, despite a high opinion of himself also had a high mortality. He had no conception of blood loss.

He would lean over and interfere with the anaesthetic. He only stopped this when I pointed out to him one day that he was pinning the wrong hip. There was also a GP surgeon in the same hospital who only did tonsillectomies and circumcisions. Yes, he did a circumcision on a child booked for a tonsillectomy. He spoke to the mother and said, "Your son couldn't pee before the operation, so I circumcised him. Of course I took his tonsils out as well.' I also remember, I was there, that the mother said, "Oh, thank you doctor." Times have changed.

Another surgeon repaired an enormous ventral hernia of an 85-year-old lady, who was grossly overweight. She'd actually come to Outpatients to have her truss renewed But the surgeon said, 'You can't go around with a truss in this day and age.' He repaired her hernia, which took many hours. He put everything that was hanging out back into the chest. But there was no room for her lungs to expand. I said, 'She can't breathe.' 'That's your problem,' he replied. I've got a golf lesson.' The lady died and the coroner called it an anaesthetic death. The rather biased coroner was called Reggie Mortis. Many of the 'accidents' that happen to surgeons are labelled anaesthetic deaths.

This is only a fraction of the stories I could tell you about this hospital. The Medical Defence solicitors practically commuted from London. Another anaesthetic death that comes to mind was that of a man who sadly, had made five previous attempts at suicide. This was the sixth attempt and we spent a long time trying to repair him but to no avail. He died. I tell you this because at the inquest, the government pathologist, Keith Simpson, in giving his report on the dreadful injuries the man had sustained, said, 'I found that his right femoral artery had been almost severed by a razor blade of the safety variety, and interestingly the name of the blade was "Cheerio!"'

Please don't get the impression that I have a poor view of surgeons, most of whom are skilled, pleasant, even tempered and sometimes on time, so different from a description of Dr Wakeley, editor of the Lancet in 1881. He was describing Sir Anthony Carlyle, president of the Royal College of Surgeons. 'Sir Anthony Carlyle,' he said, 'is not capable of performing any operation without danger to his patient. He has been incompetent for the last ten years.' Dr Wakeley was also a part-time coroner so he spoke from experience.

The truth is that when you undergo an anaesthetic you are nearer death than at any other time of your life. Every drug used is lethal, unless it is given in a skilled manner. The margins of error in poly-pharmacy, the difficulty in recognising impending disasters and the

short time available for reversal, all require an immediate response. Every anaesthetist is aware of this because daily we are reminded how tenuous life is. Few speciality areas in medicine are so demanding, sensitive and delicate as anaesthesia.