THE MYSTERY OF THE EXPLODING TEETH

AND OTHER CURIOSITIES FROM THE HISTORY OF MEDICINE

THOMAS MORRIS

BANTAM PRESS

LONDON · TORONTO · SYDNEY · AUCKLAND · JOHANNESBURG

1

UNFORTUNATE PREDICAMENTS

A REGULAR FEATURE OF ANY hospital emergency department is the patient who turns up with an embarrassing and entirely self-inflicted complaint. When questioned about the nature of their ailment and how it came about, they may fall silent or offer a less than plausible explanation. In 1953 a man was admitted to hospital in Barnsley with severe abdominal pain which he said had been plaguing him for almost a fortnight. Surgeons discovered a severe tear in the wall of his rectum, evidently inflicted just a few hours earlier, which they were able to repair. Asked how he had sustained this injury, the patient claimed that he was standing too near a firework 'while in a stooping position', and it had gone off unexpectedly. Pressed for the truth, he admitted that he had become frustrated in his personal life, and had 'decided to explode a firework up his seat'. That's one way of dealing with it, I suppose.

The medical literature is brimming with misguided individuals, the forebears of this proctological pyrotechnician, who inserted strange objects in places where they weren't meant to go. One of the earliest was a monk who tried to ease his colic by coaxing a bottle of perfume inside his gut; another account relates how a surgeon rescued the dignity of a farmer who had somehow ended up with a goblet wedged inside his rectum. But these are prosaic achievements

compared with some of the bravura feats recorded in the following pages. What is so impressive about many of these tales of mishap is the sheer ingenuity that has gone into creating a highly regrettable situation – often matched by the imaginative manner in which a physician or surgeon went about treating the unfortunate patient.

Medicine has improved almost beyond recognition in the last few centuries, but some things never change. The human capacity for mischief, misadventure and downright idiocy is apparently a trait which progress cannot eradicate.

A FORK UP THE ANUS

MODERN MEDICAL JOURNALS AREN'T exactly famous for their snappy headlines. The professional terminology doesn't help: it's not easy to write a zinger of a top line if the subject of your article has a name like 'bestrophinopathy', 'idiopathic thrombocytopenic purpura' or 'necrotizing fasciitis'.

But recent years have seen a fightback against such sterile jargon, with a few researchers trying to grab their readers' attention by means of literary allusions, pop culture references and bad puns. One recent article in the *New England Journal of Medicine* made a desperate pitch to George R. R. Martin fans with the headline 'Game of TOR: the target of rapamycin rules four kingdoms'. Another, about foreign bodies in the bladder, was headed 'From urethra with shove.'* And for sheer chutzpah it's difficult to beat 'Super-mesenteric-vein-expia-thrombosis, the clinical sequelae can be quite atrocious' – the improbable title of an article about a serious complication of appendicitis.

---

* Groan. Urologists are notoriously awful punsters.

But my favourite medical headline of all was written almost three hundred years ago. In 1724 the *Philosophical Transactions*, the journal of the Royal Society, published a letter from Mr Robert Payne, a surgeon from Lowestoft in Suffolk. The title is unimprovable:

> III. *An Account of a Fork put up the* Anus, *that was afterwards drawn out through the Buttock; communicated in a Letter to the Publiſher, by Mr.* Robert Payne, *Surgeon at* Loweſtofft.

> James Bishop, an apprentice to a ship-carpenter in Great Yarmouth, about nineteen years of age, had violent pains in the lower part of the abdomen for six or seven months. It did not appear to be any species of the colic; he sometimes made bloody urine, which induced Mr P. to believe it might be a stone in the bladder. He was very little relieved by physic; at length a hard tumour appeared in the left buttock, on or near the glutaeus maximus, two or three inches from the verge of the anus, a little sloping upwards. A short time after he voided purulent matter by the anus, every day for some time.

This is the old sense of the word 'tumour': not necessarily indicating abnormal tissue growth, but a swelling of any description. This example was, as it turned out, some sort of cyst, and eventually its surface broke. The surgeon suspected it was an anal fistula – an anomalous channel between the end of the bowel and the skin. But events soon proved him wrong:

> Shortly after the prongs of a fork appeared through the orifice of the sore, above half an inch beyond the skin.

> As soon as the prongs appeared, his violent pains ceased; I divided the flesh between the prongs, according to the best of my judgment; and after that made a circular incision about the prongs and so with a strong pair of pincers extracted it, not without great difficulty, handle and all entire. The end of the handle was besmeared with the excrement, when drawn out.

Naturally. This was a surprisingly large item of cutlery:

> It is six inches and a half long, a large pocket-fork; the handle is ivory, but is dyed of a very dark brown colour; the iron part is very black and smooth, but not rusty.

The young man was reluctant to explain how he had managed to get himself in this predicament; at least, not until he was threatened with the withdrawal of his allowance.

> A relation of his, a Gentleman in this neighbourhood, who sent him to be under my care, the Reverend Mr Gregory Clark, Rector of Blundeston, on whom, in a great measure, his dependence is, threatened never to look upon him more, unless he would give him an account how it came; and he told him, that, being costive,* he put the fork up his fundament, thinking by that means to help himself, but unfortunately it slipped up so far, that he could not recover it again.

Mr Payne adds a postscript:

> PS: He says he had no trouble or pain till a month, or more, after it was put up.[1]

* Constipated.

A fact that does not alter the moral of this cautionary tale: if you're constipated, it's better not to stick a fork up your fundament.

SWALLOWING KNIVES IS BAD FOR YOU

COMPULSIVE SWALLOWERS HAVE ALWAYS featured heavily in medical literature. There are numerous cases in nineteenth-century journals – but most of the individuals concerned were obviously suffering from some kind of mental illness. This, from the *Medico-Chirurgical Transactions* for 1823, is the first I've come across in which the patient was swallowing knives for a laugh.

ACCOUNT

OF

A MAN WHO LIVED TEN YEARS,

AFTER HAVING SWALLOWED

A NUMBER OF CLASP-KNIVES;

WITH

A Description of the Appearances of the Body after Death.

By ALEX. MARCET, M.D. F.R.S. &c.

LATE PHYSICIAN TO GUY'S HOSPITAL.

> In the month of June 1799, John Cummings, an American sailor, about twenty-three years of age, being with his ship on the coast of France, and having gone on shore with some of his shipmates about two miles from the town of Havre de Grace, he and his party directed their course towards a tent which they saw in a field, with a crowd of people round it. Being told that a play was acting there, they entered, and found in the tent a mountebank, who was entertaining the audience by pretending to swallow clasp-knives. Having returned on board, and one of the party having related to the ship's company the story of the knives, Cummings, after drinking freely, boasted that he could swallow knives as well as the Frenchman.

Not a particularly wise boast, and his comrades lost no time in challenging him to prove it. Eager not to disappoint them, he put his penknife in his mouth and swallowed it, washing it down with yet more booze.

> The spectators, however, were not satisfied with one experiment, and asked the operator 'whether he could swallow more?'; his answer was, 'all the knives on board the ship', upon which three knives were immediately produced, which were swallowed in the same way as the former; and 'by this bold attempt of a drunken man,' (to use his own expressions) 'the company was well entertained for that night.'

Actions have consequences, as every sailor should know, and when foreign objects are ingested the 'consequences' usually come within twelve hours. And lo, it came to pass.*

* So to speak.

> The next morning he had a motion, which presented nothing extraordinary; and in the afternoon he had another, with which he passed one knife, which however was not the one that he had swallowed the first. The next day he passed two knives at once, one of which was the first, which he had missed the day before. The fourth never came away, to his knowledge, and he never felt any inconvenience from it.

So nothing to worry about, right?

> After this great performance, he thought no more of swallowing knives for the space of six years. In the month of March 1805, being then at Boston, in America, he was one day tempted, while drinking with a party of sailors, to boast of his former exploits, adding that he was the same man still, and ready to repeat his performance; upon which a small knife was produced, which he instantly swallowed. In the course of that evening he swallowed five more. The next morning crowds of visitors came to see him; and in the course of that day he was induced to swallow eight knives more, making in all fourteen.

It seems to safe to assume at this point that Mr Cummings was not – ahem – the sharpest knife in the drawer.

> This time, however, he paid dearly for his frolic; for he was seized the next morning with constant vomiting and pain at his stomach, which made it necessary to carry him to Charleston hospital, where, as he expresses it, 'betwixt that period and the 28th of the following month, he was safely delivered of his cargo.'

No doubt this was a common naval euphemism of the time

rather than an original bon mot; but it made me laugh. Having 'emptied the hold', Cummings boarded a vessel travelling to France. But on the return journey his ship was intercepted by HMS *Isis*, and he was press-ganged into service with the Royal Navy.

> One day while at Spithead, where the ship lay some time, having got drunk and, as usual, renewed the topic of his former follies, he was once more challenged to repeat the experiment, and again complied, 'disdaining,' as he says, 'to be worse than his word.'

An honourable person may keep their word, but a sensible one does not consume five knives, as the misguided American did that night. And he still wasn't finished; far from it.

> On the next morning the ship's company having expressed a great desire to see him repeat the performance, he complied with his usual readiness, and 'by the encouragement of the people, and the assistance of good grog', he swallowed that day, as he distinctly recollects, nine clasp-knives, some of which were very large; and he was afterwards assured by the spectators that he had swallowed four more, which, however, he declares he knew nothing about, being, no doubt, at this period of the business, too much intoxicated to have any recollection of what was passing.

Dear oh dear. Will he never learn?

> This, however, is the last performance we have to record; it made a total of at least thirty-five knives, swallowed at different times, and we shall see that it was this last attempt which ultimately put an end to his existence.

Feeling like death, and probably more than a little foolish, Cummings applied to the ship's surgeon for laxatives, but the drugs he was given had no effect.

> At last, about three months afterwards, having taken a quantity of oil, he felt the knives (as he expressed it) 'dropping down his bowels', after which, though he does not mention their being actually discharged, he became easier, and continued so till the 4th of June following (1806), when he vomited one side of the handle of a knife, which was recognized by one of the crew to whom it had belonged.

And who presumably was not eager to reclaim it.

> In the month of November of the same year, he passed several fragments of knives, and some more in February 1807. In June of the same year, he was discharged from his ship as incurable; immediately after which, he came to London, where he became a patient of Dr Babington, in Guy's Hospital.

The doctors did not believe his story and discharged him. His health improved, and it was not until September 1808 that he reappeared:

> He now became a patient of Dr Curry, under whose care he remained, gradually and miserably sinking under his sufferings, till March 1809, when he died in a state of extreme emaciation.

Even during this final illness, the doctors treating him refused to believe that he had swallowed more than thirty knives, until …

> Dr Babington having one day examined him, conjointly with Sir Astley Cooper, these gentlemen concluded, from a minute inquiry into all the circumstances of the case, and especially from the deep black colour of his alvine evacuations,* that there really was an accumulation of ferruginous† matter in his organs of digestion. And this was fully confirmed soon afterwards by Mr Lucas, one of the surgeons of the hospital, who, by introducing his finger into the rectum, distinctly felt in it a portion of a knife, which appeared to lie across the intestine, but which he could not extract, on account of the intense pain which the patient expressed on his attempting to grasp it.

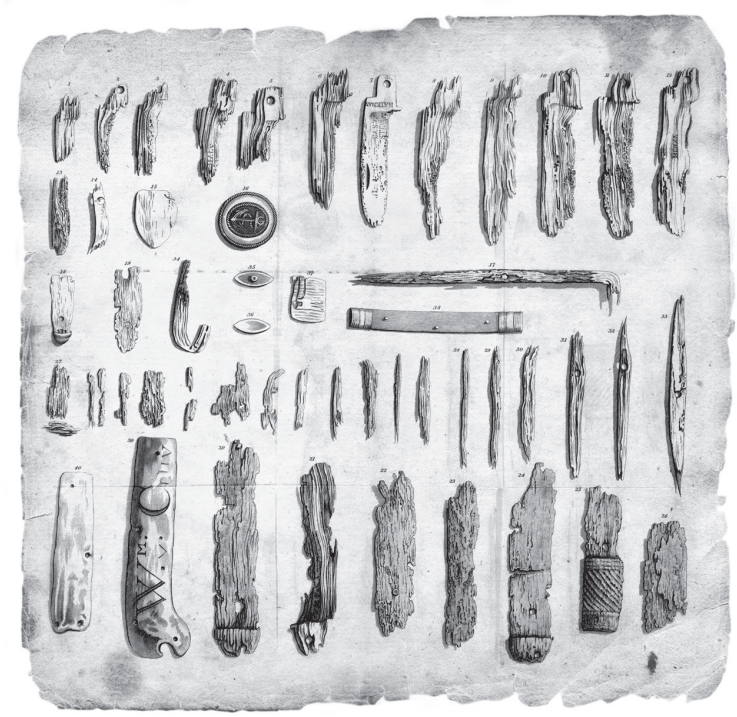
The doctors tried to dissolve the knives (or at least blunt their edges) with nitric and sulphuric acids, a measure which must have done more harm than good. Powerless to help their patient, they had to watch as he wasted away and finally died. The physicians dissected his body, and found that the inside of the abdomen presented an extraordinary sight: the tissues were stained a dark rusty colour. Several blades were found inside the intestines, one of them piercing the colon. This alone would have been enough to kill him. But that wasn't all:

> The stomach, viewed externally, bore evident marks of altered structure. It was not examined internally at this time, but was opened soon afterwards, in the presence of Sir Astley Cooper and Mr Smith, surgeon of the Bristol infirmary, who happened to be present at that moment, when a great many portions of blades, knife-springs, and

* Stools.
† Rust-coloured.

> handles, were found in it. These fragments were between thirty and forty in number, thirteen or fourteen of them being evidently the remains of blades; some of which were remarkably corroded, and prodigiously reduced in size, while others were comparatively in a state of tolerable preservation.

A close examination of the abdominal organs also cleared up one question that had puzzled the doctors: why was it that some knives had travelled through the gut virtually unaltered, while others had been partly digested?



Drawing of the knife fragments recovered from the patient's stomach

> When the stomach was able to expel them quickly, they passed through the intestines, enclosed within their handles, and therefore comparatively harmless; while at a later period, the knives were detained in the stomach till the handles, which were mostly of horn, had been dissolved, or at least too much reduced to afford any protection against the metallic part.[2]

There are lessons to be learned here. Trying to impress your friends while under the influence of industrial quantities of alcohol is more often than not a really terrible idea. And more importantly, the correct answer to the question 'Can you swallow more knives?' is *never* 'All the knives aboard the ship.'

THE GOLDEN PADLOCK

infibulation, *n.* The action of infibulating; *spec.* the fastening of the sexual organs with a fibula or clasp. [*OED*]

THIS IS NOT A word one encounters very often, so I had to look it up.* It seems to have made its first appearance in John Bulwer's *Anthropometamorphosis* ('Transformation of humanity'), a treatise on tattoos, piercings and other forms of body modification published in 1650. Bulwer reveals that in ancient Greece infibulation was used to keep young male actors chaste:

> Among the Ancients, to prevent young effeminate inamoratos, especially comedians, from untimely venery, and cracking their voices, they were wont to fasten a ring or buckle on the foreskin of their yard.†

---

* Now you know it too, why not try dropping it into casual conversation?
† Penis.

I probably would have remained in blissful ignorance of this cruel practice had it not been for this entertaining article, published in the *London Medical and Physical Journal* in 1827:

Case of Infibulation, followed by a Schirrous Affection of the Prepuce.

> Some years ago M. Dupuytren was consulted by Dr Petroz, upon the case of M, the head of one of the most important manufactories in France.

This is the nineteenth-century equivalent of the CEO of Airbus or Ford walking into your hospital with an embarrassing problem. And this particular 'problem' was very embarrassing indeed.

> He was about fifty years of age, of a strong and good constitution. For a long time he had had an abundant and foetid discharge from the penis: he made water with difficulty; the prepuce was much swollen, hard, and ulcerated in different parts.

The prepuce is, of course, the foreskin. And this example certainly sounds as if it had seen better days.

> So far the case presented nothing remarkable; but the curiosity of the attendants was strongly excited by observing that the prepuce had been pierced through in several places, and that the aperture and borders of these small orifices were completely covered by a perfectly-organized cutaneous tissue.

'Perfectly organized' means that new skin had formed over the edges of the wounds, in much the same way that an ear piercing will become lined with new skin after a few weeks, as long as an earring or stud is left inside it to keep the hole open. This observation turned out to be significant.

> M. Dupuytren determined, before he proceeded to any decisive mode of treatment, to ascertain in what manner these perforations in the prepuce had happened. The patient stated that, when a young man, he had visited Portugal, where he had remained several years. He there formed a tender liaison with a young female of strong passions, and equally strong jealousy. He was devotedly attached to her, and she acquired over him the most absolute influence.

A caring relationship between a successful French businessman and his passionate Portuguese lover. How sweet.

> One day during the transports of their mutual passion, he felt a slight pricking sensation in the prepuce; but, having his attention completely abstracted by the caresses of his fair mistress, he did not even examine from whence arose the disagreeable feeling he had experienced. But, on retiring from the embraces of the lady, he found the prepuce secured by a little golden padlock, beautifully made, of which she had kept the key!

Rather less sweet. It's romantic in a way, I suppose, but not the sort of gesture that everybody would appreciate.

> It would appear that the lady was not deficient in eloquence, for she kept her lover in good humour by

> her rhetoric, assisted, indeed, by occasional caresses, and persuaded him not only to permit the padlock to remain, but to consider it a very ornamental appendage. She even gained permission to re-apply it each time, that the skin which was pierced appeared weakened; and, however incredible it may seem, she at length, 'to make assurance doubly sure', put on *two* locks.

This seems a little excessive, and it's surprising that her paramour agreed to it. On the other hand, it may be that 'M' was finding the whole thing more pleasurable than he cared to admit to his doctors.

> M remained in this state for four or five years, constantly wearing one or two of the locks appended to the prepuce, the key of which was of course taken especial care of by his mistress. The consequence ultimately was that the prepuce became diseased, and a cancerous affection was threatened, when M. Dupuytren was consulted.

'Cancerous' was sometimes used to describe persistent ulceration rather than a malignant growth, so this may simply have been a chronic infection in a uniquely delicate area.

> The safest and most effectual course was then adopted. The prepuce was removed by an operation nearly resembling circumcision. Under the care of M. Sanson, the cure was complete in less than three weeks. The patient has remained in perfect health.[3]

Let's hope that this French captain of industry managed to keep the episode secret from his employees. It's not the sort of anecdote you want cropping up at the staff Christmas party.

THE BOY WHO GOT HIS WICK STUCK IN A CANDLESTICK

As the most celebrated and successful surgeon in early nineteenth-century France, Guillaume Dupuytren had a few things to be proud of. He was a virtuoso technician, the master of every operation in the surgical repertoire and the inventor of several new ones. Medical students came from all over Europe for the chance to squeeze into the back of a lecture theatre and witness his eloquence at first hand. He became so fabulously wealthy that he once offered to lend Charles X a million francs to relieve the privations of exile.* Dupuytren was good, and he knew it. When one of his juniors complimented him on the seemingly infallible perfection of his surgery he replied, '*Je me suis trompé, mais je crois m'être trompé moins que les autres.*' ('I've made mistakes, but I think I've made fewer than everybody else.')

Dupuytren's career was one studded with daring surgical feats and landmark cases. And then there's this one. Published in a Parisian journal in 1827, it appeared under a

* His Majesty gratefully accepted, but later wrote to Dupuytren to say that he no longer needed the cash.

headline which translates, roughly, as 'Strangulation of the penis by a candlestick.'

Etranglement de la verge par une bobèche.

> A boy, an apprentice cooper, came to the Hôtel-Dieu: from his groans, his swollen red features, his painful gait, the way he leaned while walking, stamped his feet and clutched at his genitals, one could see that he was in a great deal of pain, and that the cause of this pain was probably the urinary tract. While hastily taking off his underwear he managed to stammer that he was suffering from retention of urine, and then produced a penis which was purple, enormously swollen, and divided in the middle by a deep furrow. On separating the folds of skin which formed the edges of this depression, M. Dupuytren discovered a yellow metallic foreign body; he parted the skin further and recognised, to his amazement, the socket of a candlestick, the wider end of which was facing forward, that is to say towards the pubis.

'Socket' is perhaps not the best translation for the original French word, *bobèche*, which is a sort of ring or collar around the outside of a candlestick, intended to catch drips of hot wax. Or a teenage boy's penis, in this case.

> The torments of the patient were terrible. He had not urinated for three days; his bladder was greatly distended and extended right up to the navel; the penis was threatened by imminent gangrene. It was essential to remove the cause of this strangulation and the retention of urine without delay. While the instruments

> for the operation were being prepared, the patient, who had been pressed with questions, confessed that during a debauched and drunken game he had taken the socket of his candlestick for something else, and stuck his penis in it.

Boys, eh?

> Once it had been forced into the tube of this utensil he could not pull it out, and all his efforts to do so merely had the effect of increasing his misery; moreover, the sharp and narrow opening of the socket was facing forwards and pressing against the edge of the glans, which it had started to gouge.

Ouch.

> M. Dupuytren first cut the wide end of the socket at two opposite points; then with considerable difficulty, because of the swelling of the parts, separated it into two portions by extending his incision. An assistant was then able to insert the smaller ends of two spatulas between the edges of the divided cylinder, which soon yielded to the efforts of the surgeon and his aide, and separated into two parts which immediately liberated the penis.

It sounds as if the operation really called for a team of firefighters rather than a surgeon. Either way, I suspect most men would demur at having cutting equipment employed in such close proximity to their, ahem, equipment. After three days without urination, the boy's bladder contents must have been at enormous pressure, so it does not take much imagination to work out what happened when that pressure was released.

> M. Dupuytren learned that the strangulation had been successfully relieved when a jet of urine was projected against him.

Charming.

> The patient, who was simultaneously ashamed and delighted, immediately ran off without bothering to put on his undergarments; and as he passed through the crowd he left on them – and on the square in front of Notre Dame – abundant liquid proofs of the success of the operation, which had at once removed the torments he had endured from retention of urine, as well as the danger of gangrene and even death.[4]

As M. Dupuytren wrung out his sodden clothes I'm sure he shared the young man's delight.

SHOT BY A TOASTING FORK

UNTIL THE NINETEENTH CENTURY most people believed that a wound to the heart meant instant death. According to centuries of tradition, the organ was the seat of the emotions, the locus of the soul and the centre of the human organism. It was natural to assume that injuring this 'fountain of the vital spirits' (as the sixteenth-century surgeon Ambroise Paré called it) would put an end to life. Many doctors were of the same opinion: after all, hadn't the great Galen, the most revered authority in the history of Western medicine, written that cardiac wounds were inevitably fatal? It *must* be true.

As the better class of medic knew, there was already plenty of evidence to prove otherwise. Paré himself examined the body of a duellist who had managed to run two hundred paces with a large sword wound in his heart. Others found scars in the cardiac tissue of patients who had died from natural causes – the remnants of injuries inflicted months or years earlier. Galen's assertion was thoroughly debunked, but in some quarters it clung on stubbornly, a persistent medical

myth. Cases of prolonged survival (or even recovery) after cardiac injury were still of sufficient novelty value in the 1830s to merit publication. This example, submitted to a journal in 1834 by Thomas Davis from Upton-upon-Severn in Worcestershire, is one of the best. Davis described himself as a surgeon but, like many provincial medics of the period, was in fact an apothecary without any formal qualifications.*

SINGULAR CASE OF A FOREIGN BODY

FOUND IN THE HEART OF A BOY.

BY THOMAS DAVIS,

Surgeon, Upton-upon-Severn.

> On Saturday evening, January the 19th, 1833, I was summoned to attend William Mills, aged 10, living at Boughton, two miles from Upton. When I arrived, his parents informed me that their son had shot himself with a gun made out of the handle of a telescope toasting-fork.

Certainly an unusual way to greet a doctor. If you've decided to construct an improvised firearm, a toasting fork is unlikely to be the first implement that comes to mind.

> To form the breech of the gun, he had driven a plug of wood about three inches in length into the handle of

* This article prompted a furious letter from a local rival, George Sheward, alleging that Davis had plagiarized his own report of the case. Sheward waged a long campaign against Davis, which may have had its intended effect: a few years later a local business directory listed Davis not as a surgeon but as a 'druggist and dealer in grain and seed' – probably a more accurate description of his occupation.

> the fork. The touch hole of the gun was made after the charge of powder had been deposited in the hollow part of the handle.

Ingenious, if not particularly wise.

> The consequence was that when the gunpowder exploded it forced the artificial breech, or piece of stick, from the barrel part of the gun, with such violence that it entered the thorax of the boy, on the right side, between the third and fourth ribs, and disappeared. Immediately after the accident the boy walked home, a distance of about forty yards.

The fact that he was still able to walk appeared to be a good sign, and when the doctor examined the boy the case did not immediately seem a serious one.

> By the time I saw him, he had lost a considerable quantity of blood, and appeared very faint; when I turned him on his right side, a stream of venous blood issued from the orifice through which the stick entered the thorax. Several hours elapsed before any degree of reaction took place. He complained of no pain.

Indeed, in the aftermath of the incident he hardly seemed to have been affected by it.

> For the first ten days or a fortnight after the accident he appeared to be recovering, and once, during that time, walked into his garden, and back, a distance of about eighty yards; and whilst there, he amused himself with his flowers, and even stirred the mould.

Hobbies: horticulture and firearms. A slightly odd combination for a ten-year-old.

> He always said he was well, and was often cheerful, and even merry. There was no peculiar expression of countenance, excepting that his eyes were rather too bright. After the first fortnight he visibly emaciated, and had frequent rigors, which were always followed by faintness. The pulse was very quick. There was no cough nor spitting of blood. The secretions were healthy. He had no pain throughout his illness. He died on the evening of the 25th of February, exactly five weeks and two days after the accident occurred.

The doctor was essentially helpless to intervene. He had no way of finding out where in the body the piece of wood had ended up, and without anaesthetics (still over a decade away) it was impossible to perform an exploratory operation. There was an autopsy; Dr Davis was joined by three colleagues and, strangely, the boy's father:

> On opening the thorax, a small cicatrix* was visible between the cartilages of the third and fourth ribs, on the right side, about half an inch from the sternum. The lungs appeared quite healthy, excepting that there was a small tubercle† in the right lung, and at its root, near to the pulmonary artery, a small blue mark in the cellular tissue, corresponding, in size, with the cicatrix on the parietes‡ of the chest.

---

* Scar.
† Nodule.
‡ Wall.

All this is consistent with a wound caused by the piece of wood, which had apparently passed through the chest between two ribs and entered the right lung. But then came a surprise.

> The heart, externally, appeared healthy. When an incision was made into the heart so as to expose the right auricle and ventricle we were astonished to find, lodged in that ventricle, the stick which the boy had used as the breach of the gun, the one end of it pressing against the extreme part of the ventricle, near the apex of the heart, and forcing itself between the columnae carneae and the internal surface of the heart; the other end resting upon the auriculo-ventricular valve, and tearing part of its delicate structure, and being itself encrusted with a thick coagulum, as large as a walnut.

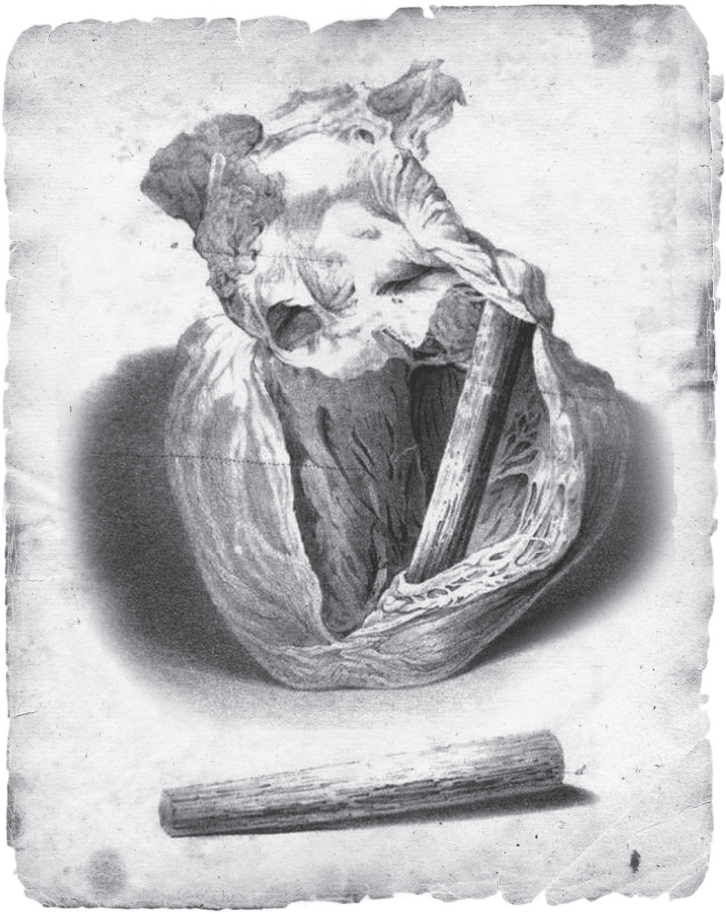
The stick had lodged in the right side of the heart, the side that propels deoxygenated blood towards the lungs. The right auricle (known today as the right atrium) is the chamber by which blood enters the heart, before passing through the tricuspid (auriculo-ventricular) valve into the pumping chamber of the right ventricle. The columnae carneae (from the Latin, literally 'meaty ridges') are a series of muscular columns which project into the ventricle. The stick had somehow become wedged underneath them and a large clot had formed around it – as one would expect when a foreign body spends any length of time in the bloodstream.

> We searched, in vain, for any wound, either in the heart itself, or in the pericardium, by which the stick could have found its way into the ventricle.

Highly significant. If the stick had simply pierced the wall of the heart, two things are likely to have happened. Firstly, the boy would almost certainly have died within minutes: a wound big enough to admit such a large object would have caused catastrophic bleeding. Secondly, in the unlikely event that he had survived, it would have left a significant scar on the heart muscle.

> This case strikes me as one of the most interesting on record. In the first place, that this child should have survived such an accident as the lodgement of a stick, three inches in length, in the right ventricle, and have been afterwards equal to so much muscular exertion as he was, appears wonderful, especially if we consider the mechanical difficulty which the heart had thereby to encounter in carrying on the circulation of the blood. In the next place, it appears somewhat difficult to point out how the stick found its way into the right ventricle of the heart. There was no wound, nor remnant of a wound, either in the pericardium, or in the muscular structure of the heart.

Dr Davis now comes up with an explanation which must have seemed deeply implausible to many of his colleagues. But it's probably correct. During the First World War, surgeons encountered a number of soldiers who had a bullet in the cardiac chambers, which had been swept there in the bloodstream, having entered through a blood vessel such as the vena cava (the body's largest vein, which takes deoxygenated blood back to the heart). Something similar seems to have happened in this case:



Engraving of the boy's heart, with piece of wood lodged in it

I am inclined, myself, to think that the stick, after wounding the lung, passed into the vena cava, and was carried by the stream of blood first into the right auricle, and then into the right ventricle, where it became fixed, in the manner before specified, and as is shewn in the accompanying plate.[5]

This was indeed a remarkably interesting case, so we're lucky that the doctor took the trouble to commission an illustration. Bear in mind that the boy lived for *over a month* with this stick in situ.