SURGERY BEFORE THE DAYS OF ANESTHESIA

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MANKIND takes things for granted. In our own generation the discoveries and advances in all fields of endeavor produce a temporary response of wonder and enthusiasm, followed soon by the relegation of the unusual to the commonplace. In the field of medicine mankind for long centuries has been struggling upward—slowly, painfully and often faltering—toward the goal of victory over pain and disease. To turn back the pages of the past few centuries is to reveal the great changes and amazing progress that have been made toward betterment of the lot of mankind. Yet we of this generation accept the fruits of this progress as a matter of course, ignorant or careless of the debt of gratitude that we owe to those whose "blood, sweat and tears" were expended that we might live healthier and happier lives. How many in this modern age really appreciate the miracles of modern surgery that were made possible by the twin discoveries of asepsis and anesthesia? How many have the vaguest idea of what it meant to be a candidate for surgical treatment before the days of anesthesia? Certainly not the patient who objects so strenuously to this or that anesthetic agent, complaining of some slight unpleasantness or discomfort. In this paper will be outlined briefly the conditions faced by both the surgeon and the patient in the "good old days," with the hope that to all who read may come a sense of gratitude and relief that we in this present day do not have to face similar ordeals.

Attempts at surgery are as old as the human race. Even the primitive peoples attempted surgical manipulations, including the operation of trephine, without incision of the dura. But surgery, as such, did not exist before the nineteenth century. It was restricted to surface manipulations and was for the most part traumatic in nature. The early surgical procedures comprised fractures, dislocations, amputations, paracentesis, hernias, bladder calculi and strictures, hemorrhoidectomy and removal of external neoplasms.

During the Middle Ages the sciences generally had declined in Europe. Surgery had fallen even lower than medicine, because medicine was in the hands of the priests, while the practice of surgery

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was abandoned to an ignorant class of barbers, bathers and bone
setters. Most of the surgery of the fifteenth century fell into the
hands of these social outcasts. Although the practice of medicine was
a clerical right, the church prohibited physicians from drawing blood,
under pain of excommunication. Hence surgery, shunned by the
priests, fell into the hands of the ignorant and vulgar, who practiced
it in mechanical ways without any knowledge or idea of its possibilities.
Most of the operators were itinerants who went from city to city;
many limited themselves to one or two operations, such as bladder
stone or hernia. The sixteenth century opened the way for checking
of hemorrhages; the seventeenth century accomplished great simplifica-
tion and improvement in the method of dressing of wounds; toward
the close of the eighteenth century, surgery became an exact science
to which every other branch of science has been made contributory.

In the light of our present day knowledge and the ability of the
surgeon to invade any and all parts of the body, a perusal of old
surgical writings seems amusing. For instance, one reads: "The
exirpation of the thyroid body we hold to be tampering with human
life, and the tying of the arteria innominata is nothing to boast of, for
death has been the result uniformly of such recklessness and ignorance
of surgical anatomy."

Because of the absence of any idea of asepsis, the mortality and
morbidity accompanying surgical procedures was appalling. Common
causes of death after operation were hemorrhage, shock, gangrene,
peritonitis and erysipelas.

Along with the era when venesection, cupping and the use of leeches
was universal practice, anesthesia was produced by such methods as
mandrake root (Podophyllum) steeped in wine, wine and myrrh, India
hemp or hashish (Cannabis activa), compression of nerve trunks,
mesmerism and hypnotism. Ordinarily a patient had nothing to lessen
pain except opium or brandy. He had to be held down by strong men.
The surgeon had to contend with the struggles and shrieks of the
patient. Speed in operating was necessary, for if a patient were long
subjected to the agony of the knife, he would die of shock. Successful
surgeons developed a sladash method and lightning speed.

When chloroform was introduced its use met with considerable op-
position, not only by the clergy but by numerous surgeons. The fol-
lowing appeared in the Transactions of the American Medical Associa-
tion, Volume 13, written in 1860 by a surgeon, J. N. McDonell, "In the
use of chloroform I hold it to be hazardous to give it to its fullest extent,
for to say the least, it is giving, unnecessarily, two chances for death to
the patient—one by the knife and the other by the anaesthetic agent.
Hundreds of cases have occurred in which death or permanent insanity
has been the result of its use." Regarding obstetric anesthesia he
wrote, "It should be a warning to every woman who has the happiness
of becoming a mother—we would exhort her to give birth to her child
as she got it—in the natural way." The final summary is, "With these cases before my eyes I have determined never to give chloroform in any operation but when diluted with sulphuric ether, and then never to the fullest extent; but if my patients will have an anaesthetic agent, I will give them as good whiskey as they will drink, which, after all is the very best agent of the kind that can be used and answers all the purposes of the others without the dangers attending their use."

For an intimate or close-up view of the early practice of medicine and surgery, of hospital conditions and of the treatment of the sick, one may consult an article written twenty-five years ago by the late Dr. W. B. Howell of Montreal, Canada (1). At that time, while searching for old medical documents in the medical library of McGill University, Dr. Howell came upon the first volume of the Lancet, published in London in the third decade of the nineteenth century. He was so impressed by what he read that he reproduced portions of it in pamphlet form, from which the following is quoted: †

"The reader of this old volume, the Lancet, finds himself 'translated to a different world, one where entrance to the medical profession was through apprenticeship, where operations were done without anesthetics and without antiseptics, where mistakes in diagnosis, errors in judgment or lack of dexterity in operations were published with every accompaniment of insult and derision which malice could suggest, where nursing was done by women of charwoman class, where the study of anatomy depended upon the activities of the resurrectionists, where cholera, typhus and hydrophobia were very present realities, where phrenology was called a science, and there still lingered a belief in the possibility of human beings undergoing spontaneous combustion.'

"The reports of the surgical operations at once rivet attention. It is difficult to imagine at the present time, when even the most trivial operation is done while the patient is under the influence of some kind of anesthetic, how our greatgrandfathers could have been induced to submit to such tortures as are described in these yellowing pages. Nor is our respect for their courage at all lessened when we read that some formidable operation was done at the 'earnest solicitation of the patient.'

"Rarely is there any reference to the way in which pain was borne, and then only when it was borne well. Nothing is said of the heartrending screams, the prayers to the surgeon to desist, or the violent struggles to break free, which were the ordinary accompaniments of operations and had no other effect than to elicit, from time to time, a peevish or angry protest from the surgeon.

"In those days there was no elaborate and complicated ritual connected with the worship of the god 'Technique.' The surgeon, when

he had put on an old coat and possibly an apron, and had seen that the patient was properly tied or held, devoted his attention to getting through his work as quickly as possible. Dupuytren, in 1825, chief surgeon at the Hotel Dieu in Paris, wore, we are told, when operating, a dirty white apron, protecting a dirtier pair of trousers, a greasy threadbare coat and well-worn carpet slippers. Assistants carried ligatures in their button holes and were proud if their working coats were as filthy as those of their chiefs. There is a smack of primitive simplicity about the story of Robert Liston cutting a piece of wood off the operating table with his amputating knife and shaping it into a plug in order to stop the bleeding of a vessel in the bone.

"In the actual operating the surgeon was obliged to rely upon his own two hands, since the chief duty of the assistants was to hold the patient. A Mr. Wardrop, in a lecture reported in one of the first numbers of the Lancet, mentions in passing a hernia operation which he did on a young society lady, in her bedroom, with no other assistance than that of her maid. A young woman, who was to be operated on for a tumor of the scalp, leaped from her chair at the first touch of the knife. A second attempt was made with plenty of assistance to secure her but again she escaped. The third time she was bled until she fainted and the tumor was quickly and painlessly cut out. Another patient of the same surgeon was a general officer who had a tumor of the jaw which he was anxious to have removed, but each time when it came to the point, he struggled and broke away. Finally at his own suggestion he was tied down so securely that he could not possibly escape. As soon as the surgeon approached him he began to struggle frantically, but finding his efforts unavailing, he suddenly resigned himself to the operation. That it was sometimes too late for the patient to change his mind even before the operation had begun is shown by the story of one of Liston's patients, who, on being taken to the operating room and seeing the preparations, lost his courage completely and rushed screaming down the corridor. He dashed into a room, slammed and locked the door; but he was not to escape, for Liston, who was very big and strong, was after him, and bursting in dragged him back to the operating room. Not all surgeons, however, were as averse as Liston to being eluded by their prey. Mr. William Cooper, a surgeon at Guy's Hospital and an uncle of Astley Cooper, when one of his patients bolted from the operating room, turned to the students and with a sigh of relief ejaculated, 'By God, I'm glad he's gone!'

"The time taken over the operations is sometimes mentioned in the reports and astonds us by its brevity! Within half a minute from the time Liston began an amputation through the thigh, the leg was on the floor; Sir Astley Cooper removed a stone from the bladder in less than a minute. On one occasion Percivall Pott performed lithotomy on two boys in nine minutes from the time the first was placed in posi-
tion to the carrying out of the second. Syme in Edinburgh performed an amputation through the hip joint in about a minute. Sometimes, however, such speed was impossible. On January 18, 1824, the Lancet reported an amputation through the hip joint by Sir Astley Cooper which occupied thirty-five minutes. There had been a previous amputation below the knee some years before, but the femur had been diseased ever since and was rapidly growing worse. The leg was removed in the space of twenty minutes; the securing of the arteries and the putting on of the dressing occupied fifteen more. The patient, who had readily consented to the operation, bore the ordeal with extraordinary fortitude and afterwards said to Sir Astley that it was the hardest day's work he had ever gone through; to which Sir Astley replied that it was about the hardest he had ever done. On the whole one is inclined to think that the patient spoke with the greater conviction.

"The frequency of operations for tying arteries for aneurysm indicates how prevalent was neglected syphilis. On one occasion Astley Cooper tied the aorta for aneurysm of the common iliac artery but the patient died within forty hours.

"From time to time cases of vaginal hysterectomy were reported. In one of these during which the patient lay across her bed, the intestines gave trouble by coming down into the vagina, but were kept in place after the operation by pledgets of lint. After a stormy convalescence, recovery took place but a vesicovaginal fistula remained. Another patient was not so fortunate in the outcome. 'She did not lose,' said the surgeon naively, 'more than 2 pounds of blood during the operation.' On December 5, 1835, there is a report of the removal of a rectal cancer which was adherent to the vagina; hemorrhage was controlled by the actual cautery and no attempt made to sew up the wound. The writer of the report, with modest exultation, stated that 'setting aside the inconvenience experienced by the involuntary discharge of feces and the falling down of the womb, no untoward symptoms appeared.' Cesarean sections were not uncommonly performed with success as regards both mother and child. One woman is reported to have undergone this operation three, and another four times.

"Stone in the bladder seems to have been extremely common. The pages of the Lancet abound with reports of operations for this disease on patients of every period of life.

"One feels that the nerve of the surgeon is almost as much to be admired as the fortitude of a woman who was operated on for osteosarcoma of the alveolar processes of both upper and lower jaws. Hemorrhage was controlled by the use of the actual cautery, 'which,' says the surgeon, 'I further employed to destroy all suspicious looking points that remained behind.' We are not astonished to read that after the removal of the whole alveolar arch of the upper jaw the surgeon found the patient in a state which he described as 'pitiable,'
and that when the incision in the lower lip was being sewn up she fell into a ‘slight swoon.’ The courage she displayed throughout the whole operation is described as ‘almost incredible.’ It is a satisfaction to know that she recovered in spite of being bled during the first few days.

"On March 5, 1836, there is a description of the removal of a tumor ‘as large as a moderate-sized cocoanut’ from the upper jaw of a patient who had undergone two previous operations, followed by recurrences. The third operation, during which the whole of the superior maxilla and malar bone of one side were removed with the tumor, was done by Robert Liston and completed in six minutes. The surgeons of a century ago were far too enterprising to be discouraged by the fact that a tumor was large. There is a report in the *Lancet* of 1831 of the removal by Charles Aston Key, a former apprentice of Sir Astley Cooper, of a tumor of the scrotum which weighed 56½ pounds.

"When Thomas Wakley started the *Lancet* in 1823, Sir Astley Cooper and John Abernethy were the two leading surgeons and teachers of surgery in London. Without permission from either of them Wakley published full reports of their lectures for the benefit of the students and the profession at large. Cooper did not object particularly. Abernethy, however, was highly incensed and tried lecturing in the dark, but his words were just as carefully recorded by the unknown reporter.

"The description, written by one who had been his pupil, of Abernethy slouching into his lecture theater with his hands in his breeches' pocket, puffing out his cheeks, or whistling and then throwing himself into his chair to deliver his lecture, with one leg over the arm, brings the unconventionality of the man vividly before us.

"Another name which ranks in interest with those of Abernethy and Astley Cooper is that of Liston. It does not appear with any degree of regularity in the *Lancet* until 1835, when he came to London from Edinburgh at the age of 41, having been appointed surgeon to the North London Hospital and professor of surgery at University College. Tall, strong and handsome, with a rough manner and an irascible temper, he quickly became a conspicuous figure in medical circles. He was undeniably the most dexterous and resourceful operator in Great Britain. He did a great deal of operating on poor people in their own houses or in lodgings which he himself provided. He removed the scapula, for the first time this operation had been performed in Great Britain, 'in a small, badly lighted room.' He successfully removed, also in a private house, a tumor weighing 44½ pounds from the scrotum of a patient with elephantiasis. At the end of the operation the patient, we are not surprised to learn, was in a state of collapse so 'a cordial (good strong whiskey) was poured into the stomach... and
before much signs of recovery could be observed he had taken one pint of it." The nationality of the patient is not mentioned.

"Liston looked on the tourniquet as a useless and harmful device. 'I have repeatedly,' he wrote, 'when no proper assistance was at hand, compressed both the femoral or the humeral arteries with the fingers of one hand, whilst with the other I removed the limb, and with the loss of much less blood than if I had followed the other mode.' Such a feat required uncommon strength of grip, for it must be remembered that the patient would almost certainly have been struggling. It was Liston who was the first in England to perform a major operation with the patient under ether anesthesia. His attitude toward this discovery seems to have been one of scepticism, but when the patient, whose leg he had just amputated woke up in the operating room and said, 'When are you going to begin! Take me back, I can't have it done,' he was convinced and exclaimed: 'This Yankee dodge, gentlemen, beats mesmerism hollow.'

"Surgery must inevitably have had a certain brutalizing effect on medical students and practitioners. It must be remembered that a surgeon before the days of anesthesia was a man to be pointed out in the streets with the same kind of shuddering interest that would now be directed toward the public hangman. Here is an example of a degree of callousness to which in a more humane age we are quite accustomed: Mr. Chevalier kept the urethra distended for three and a half hours in a girl of small stature and of feeble habit, with stone in the bladder. 'The pain,' he said, 'was as severe as well can be conceived, being as violent as any bodily suffering I ever saw under any circumstances and altogether without remission!' Mr. Chevalier was very strong on the danger of dilating the urethra in the female too quickly.

"In the report of a case of hydrophobia at Guy's Hospital it is stated that the patient was subject to the most agonizing spasms as a result of even trivial causes, such as a sudden gleam of light or draught of air. A certain Dr. Blundell, one of the physicians of the hospital, entered the room with a large number of students and after the pulse leaned forward suddenly and blew in the patient's face 'which caused him,' says the report, 'to start up in great agony and to express himself very severely against the doctor for the torture to which he had put him.' Dr. Blundell said he was perfectly satisfied as to the nature of the disease and that that single circumstance might be considered sufficiently pathognomonie. The patient was afterward bled 40 ounces until his pulse, which had been 84, rose to 160. The effect of this was to throw him into a state of 'ungovernable excitement and restlessness.' An attempt was then made to give him an intravenous injection of water but without very great success, partly on account of his restlessness and partly owing to the fact that kindly death intervened between him and his medical attendant.
When we read in the numbers of the reports of cases of hydrophobia we understand the terror with which this disease was regarded. There seems sometimes to have been a curiously dramatic element in the onset of symptoms. In the report of a case of hydrophobia in a child the writer says:

'The treatment I adopted in this case consisted in bleeding, the use of opium, eroton oil, calomel, etc., variously combined, turpentine enemas, and lastly the internal exhibition of strychnine in quarter of a grain doses, but the poor fellow did not live to take them. He died in great suffering fourteen hours from the time at which I first saw him. It might be well to mention, that for two hours preceding his dissolution he spoke nothing scarcely, but bloodshed, frequently calling for the knife in order that he might annihilate those who had, in his perturbed imagination, been the cause of his sufferings, and amongst that number I was very particularly included.'

'It is difficult for us to realize the extent to which bleeding was carried. It was a more or less important part of the treatment of nearly all diseases and injuries. It would seem as if, in the opinion of the medical world, the chief function of the blood was to provide an excuse for venesection. No less a personage than George IV, when he was unable to attend the deathbed of his father on account of a cold, was bled 80 ounces and 'might have died even then from a relapse if he had not been bled another 50 ounces.' However, the loss of 130 ounces of blood was not very serious to a man with the dimensions of Beau Brummell's 'fat friend.'

'Under the heading of 'Foreign Department' is the report of a case of a French sergeant who had been wounded in the carotid artery near its origin. 'A copious haemorrhage of arterial blood followed, which produced in a short time, a state of complete syncope. When seen an hour afterward, 'he was very pale and feeble; the pulse was very weak and irregular; the pulsations of the heart were very strong and extended. . . . The patient was placed in bed. . . . He was immediately bled from the arm to the extent of 20 ounces.' Pressure was maintained in the wound by relays of students. Next day 70 ounces of blood was withdrawn in seven bleedings and the day after 24 ounces. Between the third and the seventeenth day only 56 ounces was taken. In spite of all this bleeding, the recurrent hemorrhages from the wound and of the frequent applications of leeches 'aided by the sedative effects of digitalis given in much larger doses than have been tried in this country' he recovered.

'In Clutterbuck's 'Lectures on Bloodletting,' which was published in 1839, when the Golden Age of bleeding was coming to an end, there is a footnote which reads as follows:

'For examples of boldness in the use of the lancet, I may refer you to the practice of some of our surgeons. In one of the great hospitals of the metropolis a case occurred lately where 128 ounces of blood (8 pounds or 1 gallon) were
drawn at one time in order, by inducing syncope, to facilitate the reduction of a dislocation of the thigh. The patient lived a week afterwards, and then, as is said, died from inflammation of the vein punctured.'

"It is interesting to read in the 'History of Saint Bartholomew's Hospital' that during the year 1837 no less than 96,300 leeches were used.

"There were no 'therapeutic nihilists' a century ago. A young man suffering from pneumonia, we read, was bled 52 ounces in the first two days of his illness. 'That pink of apothecaries, Master Whitfield,' said the Lancet, 'instead of bleeding him again actually directs 12 leeches to the side with small doses of sulfate of magnesia and antimonial wine!' Next morning a certain Dr. Elliotson took charge and directed a vein to be opened. More than 20 ounces was abstracted and the patient expressed himself as 'much relieved.' A large blister was then applied to the side, and he was given a dose of 10 grains of calomel which was to be repeated every two hours. Two grains of opium was ordered to be given 'at bedtime.' By the next day the unfortunate young man had taken 4 scruples of calomel 'but the mouth is not at all affected.' More blood was let and it was found to be 'buffed and cupped.' One is glad to know that the patient recovered.

"It is a humiliating thought for us that some of the greatest advances in medicine have been made by abandoning time-honored methods of infliction of harm on the sick.

"The writer was at first astonished and puzzled at the malignant spirit in which the mistakes and shortcomings of the leaders of the profession were recorded in the Lancet. The explanation is to be found in the biography of the editor by Squire Sprigge, which records his fight against an iniquitous system which allowed the promotion of incompetent men to important hospital and teaching positions through nepotism and purchase.

"In one of the very early numbers of the Lancet we read that 'a man has just expired in St. Thomas' hospital on whose body an attempt was recently made to tie the subclavian artery. The miserable man was under the hands of the operator nearly four hours.' Another case to which the Lancet drew special attention under the heading: 'St. Bartholomew's Hospital—Extra-ordinary operation—Death,' was that of a child of 7 years of age who was supposed to have a nail in his ear. He had to be held by several assistants before he could be examined. 'A probe was passed 'about an inch' into the ear and could be 'distinctly heard to strike some metallic substance which appeared to be firmly impacted in the tympanum. . . .' Several pairs of forceps were successively introduced and with each of them the piece of nail was taken hold of, but could not be extracted.' The attempt was abandoned for the time being. Six days after the child was 'apparently well, with no pain in the ear or head, though there was a discharge of pus.' A few days later he was operated on again by a
Mr. Earle. Nothing was said of how many assistants were necessary to hold him this time, or of the terror which the prospect of a second bout of torture must have aroused in his mind. The surgeon introduced a director into the meatus 'which he used with so much force that he bent it; dressing forceps were then employed, with which he laid hold of the nail and pulled so forcibly that he bent them also.' Further attempts were made, the only result, besides inflicting pain and injury, being to damage the instruments used. 'The nail,' said the Lancet, 'could not be moved though Mr. Earle exerted great strength.' An incision was then made parallel to the posterior part of the ear and the external auditory canal was divided. 'Forceps of different kinds were repeatedly introduced, but they were either bent or slipped their hold . . . a pair of tooth forceps was next employed and after laying hold of the nail . . . and pulling very forcibly, the surgeon at length succeeded in extracting three pieces of metal which appeared to be portions of the head of the nail.' After an hour of these well-meant efforts Mr. Earle 'called for a pair of wire nippers for the purpose of cutting the nail in two, but some gentleman observed that they would be too large to be introduced into the tympanum.' The end of the operation came when the operator had to acknowledge that he did not know where the nail was. The child was now found to be 'nearly exhausted,' and was sent back to the ward, where he died a few days later. At the postmortem examination considerable destruction of the bone was found, but there was no sign of the nail. One wonders if the 'three pieces of metal' were not parts of broken off instruments.

"There was a certain Mr. Joe Burns, surgeon to the Middlesex Hospital, to whose shortcomings Wakley drew attention with remorseless persistence. The following is an example of the treatment accorded to 'Sapient Joe,' as he is spoken of in one place. 'Another splendid illustration of the celebrated Joe Burns' surgical abilities occurred at this hospital a few days hence in the operation of trephining. It is scarcely necessary to say that the patient is dead.'

"In another number under the heading, 'Middlesex Hospital and the Surgery of Joberns,' there is a harrowing account of a strangulated hernia treated with repeated attempts to reduce it, though terribly tender, by taxis, hot baths and bleeding. This treatment was only discontinued when the skin was 'black and blue and in places blistered.' Finally as a last resort the patient was operated on twelve hours after admission and died. 'It is a melancholy fact,' the Lancet continues, 'that for upwards of two years not more than one patient has recovered from the operation for strangulated hernia at the Middlesex Hospital.' This very plain speaking led to an inquiry by a special board of governors of the hospital, at which it was stated that the surgeons did not know that the case was one of hernia. 'Why then,' asks the Lancet, very pertinently, 'did they so indefatigably employ taxis?'"
"If Wakley had had more clinical experience he would have appreciated the difficulty in diagnosing some abdominal swellings and would have been less facetious in his account of the following case:

"There has been another highly interesting case at this hospital, of the hydraulic species, the particulars of which we give in a subsequent number. We were informed that it was a case of ascites, but the water, by some miraculous power, suddenly became converted, not to urine, but a fine chopping boy who took the liberty of leaping into this world about half an hour previous to his intended passage through the cannula of a trochar."

"Wakley was no more lenient in his book reviews than in his reports of hospital practice. Of a book on Colchicum he says, 'a great part of the book is composed of unintelligible verbiage.' The review ends with the statement that 'the book is the finished perfection of dullness and obscurity.'

"One is struck with the frequency of Latin quotations in the articles written by outside contributors. The time devoted to the classics at school was proportionately much greater a hundred years ago than it is now and indeed, it must be remembered that a medical education then included an examination in Latin, in Celsus' 'De Medicina.' English seems to have been considered a language quite inappropriate in prescriptions. It is not likely that there was a version in English for the benefit of the nurses, since it would have been wasted on most of them, for there were few who could either read or write.

"During the second year of the Lancet's existence one of the greatest advances in medical science was heralded by the announcement of the invention of the stomach pump. The first reference occurs in November 1824, among the "Hospital Reports," where we read:

'At half past one o'clock, the operating theatre (at Guy's) was crowded to excess in consequence of its having been stated . . . that some experiments were to be tried on a dog this day, for the purpose of ascertaining whether liquids could be put into the stomach and removed from it by means of an instrument which had been lately invented by a Mr. Reed of Hosmondon, Kent.'

A dram of laudanum in four ounces of water was given to the dog and after thirty-three minutes removed from the stomach. The Mr. Reed mentioned was a gardener. His invention, when he first showed it to some medical practitioners in his neighborhood, was received with derision, but later he came to London and explained it to Sir Astley Cooper, who at once recognized its possibilities. Reed afterwards invented a number of other instruments for use in human and veterinary surgery.

"Even the advertisements in the old numbers of the Lancet are full of interest. Here we find particulars concerning the different private anatomy schools, Brooke's, Grainger's and Carpuce's. The names associated with them are those of men with high scientific attainments and eccentric personalities. Much of their success depended on their
keeping in favor of the resurrectionists, upon whose good will and caprices they depended for their supply of subjects. The houses occupied by the schools were for the most part built for purposes other than teaching, and were ill-lighted and ill-ventilated. When we consider the gloominess of the usual London winter day, we may take it for granted that the dissecting rooms were lighted even during the day with gas or candles, the latter evil-smelling and requiring frequent snuffing. However, the vitiation of the air by artificial lighting probably escaped observation at a time when the means of preserving bodies was very little understood.

"The following is an extract from another letter to the editor:

'I do not hesitate to appeal to you upon a subject which may appear to some to merit little notice, but to me and to many of my fellow students is an intolerable nuisance. I allude to the filthy state of some of the anatomical schools, but more particularly the one in Little Windmill Street. Upon entering the dissecting rooms, the museum, etc., the nose is assailed by a "compound of villainous smells," not to be described. Is this to be wondered at, when putrid animal matter may be seen in every corner dragged by the rats (which abound in the building) even from the dissecting tables?'

"Dissecting was not limited to anatomy schools and hospitals in the days before the passing of the Anatomy Act in 1832. Astley Cooper, when he lived with Cline as his pupil, kept a subject in a room at the top of his master's house where he and a fellow apprentice dissected, until one day they found they were being watched by some workmen on a neighboring roof. At that time feeling against the desecration of graves by resurrectionists was so strong that it was no uncommon thing for mobs to make hostile demonstrations against places known to be used for anatomical purposes. That this was not an isolated case of dissecting in a private house we conclude from finding the following advertisement in the Lancet: "Consulting surgeon, residing at a convenient distance from St. Bartholomew's and Bourough Hospitals, has vacancies for two pupils to live in his house. He has a private dissecting room."

"The social centers for the medical students were the dissecting rooms at Guy's and a neighboring tavern, the 'Ship and Shovel': there was, during most of the day, a continual passing to and fro of individuals carrying pots of 'half and half.' In the taverns the students could be sure to hear the latest gossip of the prize ring, the racing stable and the cockpit. From there they could start off for Newgate, supplied with well-filled case bottles and sandwiches in time to get a good position from which to watch the public executions; not that there was any novelty to a medical student in observing the expression of terror in the human face, since that emotion could be just as well studied in patients in the operating room as in felons on the scaffold.
“It must be remembered that at this time entrance into the medical profession was through apprenticeship. There were two distinct classes of practitioners, the leaders and the rank and file. The former held the hospital appointments and handed them on to the men who had been their apprentices and who paid large sums of money for living in their houses and studying under them. The appointments, it is true, were made by the governors of the hospitals, but the physicians and surgeons were usually able to exert enough influence to secure them for their nominees. The examiners and lecturers of the Royal College of Physicians and the Royal College of Surgeons were appointed from the members of this charmed circle. The teaching positions were very lucrative, as the students’ fees were high. The rank and file had little hope of rising from obscurity, since hospital and teaching positions were not for them. As apprentices to apothecaries and surgeons doing general practice, they served in their master’s shops, helped with the practice, and added to their scanty pocket money by keeping the fees which they collected from the poor patients for bleeding them and drawing their teeth. If the apprentice was fortunate in his master, he acquired an accurate knowledge of medicines, of the methods of making and dispensing them, and of keeping the accounts and managing a practice in a business-like way. If he was unfortunate, he learned very little, most of his time being wasted in doing work which in no way prepared him to practice his profession.

“The last year was spent in ‘walking the hospitals’ in some large city and in preparing for the examination of either the Royal Colleges or of the Society of Apothecaries. The licentiates of the last named were supposed only to dispense medicines but in reality prescribed them as well. A large number of the family practitioners were nothing more than apothecaries. To obtain a license to practice, evidence of having served an apprenticeship and of having paid fees to the examiners for attending their lectures or hospital practice was necessary, but any real evidence of knowledge which would fit the student to practice was quite a minor consideration. The examinations were carelessly conducted, no precautions being taken against impersonation. Under such a system there could be no incentive to ambition for the rank and file, so that much of the student’s time was spent in idleness and dissipation.

“It was with the purpose of reforming medical education that Wakley set himself to expose the shortcomings of those members of the hospital staffs whom he considered incompetent. One cannot read in his biography the story of the dramatic events which turned him from private practice to organizing and editing the *Lancet* without being convinced that the early misfortunes, lifting him as they did, out of obscurity into the glare and publicity of the fight for reform, were a blessing in disguise. No man was ever more certainly intended by Providence to tread the thorny path of a reformer. He had inexhaustible energy and
pluck, a profound compassion for the weak and suffering, a hatred of injustice and perhaps a certain enjoyment in stirring up hostility to himself in a good cause. It was perhaps well for him that he was big, athletic and knew how to use his fists.

"Wakley insistently demanded justice for the ordinary medical student, who in spite of paying exorbitant fees was treated with carelessness and indifference by his teachers. In a letter to the editor which was published under the title 'Abuses at St. George's Hospital,' we find statements which excite our sympathy for the patients as well as for the pupils.

'Upon the surgeon entering the hospital ward, instead of all that order and quietude which ought to prevail, a scene takes place that almost baffles description; he is followed to the bedside by an immense number of pupils, perhaps 40 or 50, all of whom are eager to hear his remarks and witness the plan of treatment adopted. As many as can possibly squeeze themselves around the bed, do so, some sit, some kneel and some stand on it, while those in the rear keep up a continual bustle in endeavouring to dislodge those who had procured better places than themselves.'

"That at times a good deal was left to the dressers is shown by a case which Abernethy quoted in one of his lectures. It was that of a man who, having sustained a not very serious injury to the head, was brought into St. Bartholomew's Hospital and put under the charge of the dresser who was an enthusiastic advocate of venesection. The patient was bled three times a day for ten days, when he died, and at the postmortem examination no other cause for his death could be found than the loss of blood.

"Something more than an ambition to prescribe drugs and to bleed seems to have inspired the hero of the following story, which appeared in the report of one of Sir Astley Cooper's lectures and which throws a gleam of light on an age in some ways widely different from our own:

'A few years ago one of the dressers at St. Thomas' Hospital, wishing to perform an operation, turned his attention to the surgery boy, who had a deformed leg. He said to him one day: "Abraham, I should like to cut off your leg." "Indeed," said Abraham, "I should not like it." "Oh," said the dresser, "it will never be of any use to you in its present state, and therefore you will be better without it. I will take a lodging for you. I will give you some money and you shall be well attended to."

'The boy's objections were overcome. He took the money and went to the lodgings. All arrangements having been made, the operation began; but the dresser finding a great discharge of blood cried out to his assistant: "Screw the tourniquet tighter!"

'Unfortunately the screw broke and at this unforeseen accident the dresser lost his presence of mind. He jumped about the room, then ran to the sufferer and endeavoured to stop the effusion of blood by compressing the wound with his hand, but in vain. His sleeve became filled with blood. Poor Abraham would have died in a very short time had not another pupil, happening to come in, compressed the artery with the door key.'
"We may suppose that the student, never having performed an operation, wanted to find out at the least possible cost to himself whether or not he had the nerve to be a surgeon. As to the surgery boy, he must have known from actual observation, or at least on good authority, what an operation meant in pain and danger. He must have known that he could have had the operation done in the hospital at no expense to himself by one of the experienced surgeons in the country, and yet he deliberately chose to put himself in the hands of a tyro. It seems unlikely that it was nothing else than stupidity. Perhaps it was the temptation of a comfortable room to himself and the chance to be waited on during the convalescence. It must be remembered that a hundred years ago the poor in London lived very close to starvation and under the most appalling conditions of overcrowding and lack of sanitation. He was well justified, if we may judge by a case published in the Lancet in 1828. It was that of a boy aged 12 years who was brought into St. Bartholomew’s Hospital unconscious, having sustained a fracture of the base of the skull. When consciousness was returning he was given an enema and died in great agony ten hours later. At the postmortem the enema was found in the peritoneal cavity and a tear was found in the rectum.

"There was a complete separation between students of medicine and students of surgery, the latter only rarely entering the medical wards. In 1820 there were at St. Bartholomew’s Hospital only three students of internal medicine, while there were hundreds of surgical students. The little that the latter knew of medicine was acquired by watching the medical treatment of surgical cases by surgeons.

"Another of the many causes in which Wakley took up the cudgels was in the unfair treatment of the junior members of the medical service in the Navy. A letter written by one of the assistant surgeons of the Navy described in detail the appalling unsanitary conditions under which they were forced to live and work.

"Now and then we get interesting glimpses of hospital administration. At the very beginning of his career as editor, Wakley, always on the lookout for abuses, drew attention to the hawking of porters in the wards of St. Thomas’ Hospital, and of oranges, tarts and other delicacies in Guy’s. A man who had been a patient at St. George’s stated that he had been in the hospital suffering from a fracture and did not have his sheets changed for three weeks, but this was mentioned incidentally and without any suggestion of its constituting a grievance. He was fortunate in having a towel of his own as none were supplied by the hospital, with the exception of a roller towel which did for the whole ward. Another patient stated that his bed linen was changed once a month.

"In 1824, patients with gonorrhea at Guy’s Hospital, and probably at other large hospitals in London, were kept in lock wards, and were given a six weeks’ course of mercurial treatment by mouth and by
inunction. On May 15, 1824, the Lancet published a lecture by Sir Astley Cooper in which he attacked this custom so fiercely that it was soon after discontinued. He said:

‘As long as I continue a surgeon of Guy’s Hospital, I will endeavour to do my duty, but I care not whether I continue a surgeon of that hospital another day. I do say that the present treatment of patients with gonorrhea in these hospitals by putting them unnecessarily under a course of mercury for five or six weeks is disgraceful. . . . You are aware, gentlemen, that I scarcely ever enter the foul wards. . . . I abstain from entering them because patients under gonorrhea are compelled to undergo so infamous a system of treatment that I cannot bear to witness it. . . . If you ask whether he is salivated he will tell you that he spits three pints a day.’

‘It is hard for us to realize the extent to which the administration of mercury was carried. Liston in his ‘Elements of Surgery’ referred to patients who spat ‘some gallons a day,’ and ‘whose tongues protruded from their mouths.’

‘It is with something of a shock that one realizes that as recently as one hundred years ago there still lingered in the minds of the public and even of medical men, a belief in the possibility of spontaneous combustion in human beings. Another case of spontaneous combustion was that of a fisherman’s wife at Ipswich who was ‘consumed with an inward fire. She appeared like a heap of charcoal covered with ashes. The legs, arms, and thighs were very much consumed. However, it is remarkable that the dead floor on which she was extended had no appearance of being in the least singed.’ Under the heading ‘Foreign Department’ we find the following: ‘In the Journal de Pharmacie there is a case recorded by Professor Rudolphi, of a man who suddenly felt a pain in the arm, similar to that produced by a blow from a stick and immediately perceived a small flame, which burnt his shirt.’ There is also mentioned the case of a girl, 17 years of age, in whom a kind of bluish flame appeared around the finger; the flame would not be extinguished by water, but could only be distinguished in the dark.

‘Among the miscellaneous items of interest which the writer came across in the Lancet was a report written by the Swedish consul-general at Tangier on the subject of a Spanish army surgeon who was studying the plague by inoculating deserters with pus from pestilence buboes. These experiments were done, we are told, with the approval of the Spanish government. Of the approval of the deserters nothing is said; their interest in the results of the experiments may perhaps be taken for granted. None of them seems to have contracted the disease.

‘In lighter vein is an account of a discussion at a meeting of the London Medical Society on the subject of maternal impressions, where one of the members described a birthmark which closely resembled a mouse. It appeared that whenever a cat entered the room where the
patient was, the part of the birthmark which corresponded to the mouse’s tail curled up.

"I have not attempted in my selection from the pages of the Lancet to portray to any extent the war which Wakley waged, almost single-handed, against powerful, vested interests. The victory was won long ago, and we of this generation accept its fruits as a matter of course, ignorant or careless of the debt of gratitude we owe to the greatest medical reformer England ever produced."

It is indeed difficult for us of this present age to realize that such conditions as have been described actually existed not so many years ago. Certainly the so-called "good old days" were anything but good for those who fell into the hands of the surgeon.

REFERENCE

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MORNING: The Anesthetic and Surgical Management of Pheochromocytoma—Julia G. Arrowood, M.D., and Jesse E. Thompson, M.D.
Oxygenation as Affected by Tidal Volume and Varying Tension of Nitrous Oxide-Oxygen Inhaled at One Mile Altitude—Raymond H. Weaver, M.D., and Robert W. Virtue, M.D.
Epidural Anesthesia—Angus MacMillan, M.D.
The Changes in Blood Gases Associated with Various Methods of Induction for Endotracheal Anesthesia—LeRoy W. Krumperman, M.D., and Robert J. Lachman, M.D.
Experimental Studies in Cardiac Defibrillation—Hugh H. Macartney, M.B.
Biochemical Approach to the Management of Asphyxia Neonatorum—Sydney Segal, M.D.
Studies on Regurgitation and Aspiration During General Anesthesia—William Berson, M.D., and John Adriani, M.D.

AFTERNOON: How much of Your Practice is Pediatric Anesthesia—David W. Compton, M.D.
Physiopathological Considerations on Controlled Hypothermia—Clinical Experiences—E. Ciocatto, M.D.
Anesthesiology in Private Group Practice: A tested plan of organization—Kenneth F. Ether, M.D.
Anesthesia for Mitral Commissurotomy—Max S. Sadove, M.D., Gordon M. Wyand, M.D., Ormond C. Julian, M.D., and William S. Dye, Jr., M.D.

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