

Eastman

THE EVOLUTION OF SURGERY.*

BY

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While waiting for a street-car in the good city of Philadelphia, one raw, chilly morning last March, I glanced at a striped post near me and then to the barber who, having improved my looks, was peering through the glass door for another customer.

Wondering how a man could spend a life with razor and scissors in such a narrow sphere of usefulness, I am reminded that the residence corner of Eleventh and Walnut streets, in sight of where I stand, was the home of one who, with knife and scissors, cut away the fogs which obscured his wonderful powers, wrote his experience in books, thereby securing the professional plaudits of the civilized world.†

Lost in admiration of this ideal American surgeon, my day dream begets the thought that his now lofty science was but the outgrowth of the barber's trade, for the time was when the striped post served alike the barber and surgeon, inviting not only him whose face was to be *whitened* by the removal of the beard, but others whose skins were often striped *red* with blood flowing from cuts made by the blue steel. Hence the color of its stripes seen in our streets to this day.

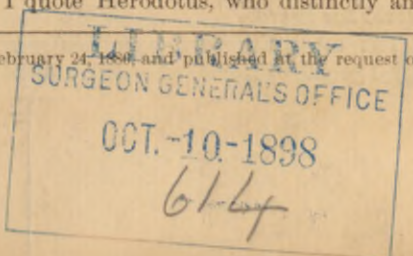
I purpose, on this occasion, to act the part of the evolutionist, indicating where the science of surgery comes from, rather than to do duty as a theologian, pointing out where its great spirit is going to. I might suggest, however, that the future of all things depends largely upon the past, and the now; that the sciences are gradually developed, and it is only by reviewing past centuries that we can determine their laws of growth.

Looking into the dim vista of an almost fabulous historic period, we find, wherever history speaks of the human family, there is an occasional mention of the healing art.

The Egyptians had a knowledge of medicine; but until 1799 all concerning it was enshrouded in darkness, when a French engineer, while throwing up earth-works at Rosetta, discovered an insignificant stone, from which valuable data have been obtained carrying the knowledge of medicine back to a period previous to three thousand years before the birth of Christ, and evince an attempt at rational treatment which surpasses that displayed by the early Greeks. As evidence of its status, I quote Herodotus, who distinctly an-

* Delivered at the Grand Opera House, February 24, 1886, and published at the request of friends.

† Dr. S. D. Gross.



nounces that specialties existed among these primeval people. "Here," he says, "each physician applies himself to one disease only, and not more. All places abound in physicians: some for the eye, others for the head, others for the teeth, others for the parts about the belly, others for internal diseases." They recognized the necessity of a concentration of one's life energies on a single theme as being highly essential to becoming an expert in any given department of science. They had no permission to dissect human bodies, no chloroform to rob the knife of its terror, or surgery might have obtained a foundation (a bed rock, as it were) equal to what it has to-day.

From the Bible we get no knowledge of surgery, and only suggestions that medicine was practiced. Seventeen hundred years before Christ, "When Jacob died Joseph commanded his servants, the physicians, to embalm him." It has been suggested that it required a knowledge of anatomy to embalm bodies in those days, but, according to Herodotus and others, it did not. In Moses we find intelligent reference to different parts of the human body.

In the New Testament Luke records the fact of a woman having an issue of blood twelve years, which had spent all her living upon physicians; neither could she be healed of any. And this was four hundred years after Hippocrates had made a division of labor between priest and physician, and by so doing raised medicine from a system of superstitious rites, practiced wholly by the priests, to the dignity of a learned profession.

There were physicians, but no surgeons to whom ladies could apply for relief; surgery being carried on by the very lowest strata of society—even by criminals. I am not here to say that a division of labor has given the world any better preachers than the Apostle Paul, nor better doctors than the Apostle Luke, who could have no higher honor, as he was called the beloved physician; nor, from his ability shown in another business, do I believe the barber's trade has had any better barbers than Ambrose Paré. But I hope to show that by the aid of anatomists and surgeons, possessed of far-seeing wisdom, giant intellect, and indomitable will, surgery has been elevated from the disreputable position it occupied only a few centuries ago, until it has become the crowning glory of all science and of all art.

The Egyptians were the first to practice surgery. Chiron, *the centaur*, was the father of Greek surgery. Esculapius had temples where all surgical knowledge was kept. His descendants monopolized surgery for a time. Notwithstanding this, history shows that surgery gained little from the educated clergy while the practice of medicine was always in their hands.

Even during the fifteenth century the practice of surgery was abandoned to a class of ignorant barbers, bathers and bone-setters. To show the extreme contempt in which this class of operators was held, "No artisan," says Sprengel, "could take a young man as an apprentice without an attestation showing that he was born of honest parents, the fruit of a legitimate marriage, and the issue of a family in which there were neither barbers, bath-keepers, shepherds nor butchers. Nevertheless," says this historian, "these men were, to the middle of the fifteenth century, the surgeons of most of the cities of Germany," the very country of Virchow and Billroth—names of whom the world has heard.

The other European countries were but little more advanced. "The royal people of Rome, who delighted to see the blood flow, not only on the

battlefield, but also in their diversions and daily exhibitions, regarded it as profane to touch a corpse," in the way of dissection, so that not a single anatomist of any reputation had his origin in Rome, and for *seven hundred* years that city had no surgeon of note. In Italy, from the thirteenth century, a few physicians attempted surgical operations in a timid way. In France Lanfrank and Gui De Chauliac gave the art a temporary raise.

If it be asked how it was that for a period of two thousand years, an art as useful as the surgeon's was so neglected by men who could best comprehend its utility, namely the physician, the answer will be found by recalling the condition of society in general and the medical profession in particular, during the Middle Ages. The Christian nations of the west were at that time divided into three very distinct orders, namely, the Noblesse, unceasingly at war; the Clergy, filling all the liberal professions; Populace, in all the lowest occupations, supporting all the rest, but having no privileges. In this division the practice of the healing art was a clerical right. A canon of the church prohibited the clergy drawing blood under penalty of excommunication; consequently many of them abandoned surgery to the ignorant and vulgar laity, who followed it as a mechanical work. Another reason why the clerical doctors did not practice surgery was the lack of precise anatomical knowledge, which is frequently as essential to the physician as the surgeon, but the defect of which is more sensible in the latter. The more enlightened physicians were more conscientious about invading the mysterious labyrinth of the human body than the ignorant class who practiced surgery; and socially the latter had nothing to lose, as they moved from one city to another, especially when some of their reckless work forced them to depart. Even among these men there was a division of labor, some operating for cataract, some for stone, others for rupture. The ignorant could not advance surgery, and for want of anatomical knowledge the clergy were powerless to.

The corner-stone of our present magnificent surgical temple was laid about three hundred years before Christ, when the managers of the Alexandrian school permitted Erasistratus and Herophilus to dissect human bodies, to utilize the dead to the dearest interests of the living. Only for the destruction of the libraries the foundation of surgical science would then have been completed. However, Queen Cleopatra, whose enlightened zeal for the sciences has rendered her quite as celebrated as her beauty, repaired this loss as much as possible. Hence a debt our science owes to woman.

The efforts of these ancient worthies in the school at Alexandria were not in vain. The taper lit by them in the midnight darkness of human anatomy continued to burn, despite all that priests or potentates could do to extinguish its flickering flame; for in Galen's time, five hundred years later, it was a passport to respectability in medicine to have even lived in Alexandria, because human bodies had been dissected in that city, and there a real human skeleton could be seen.

Soranus, educated at Alexandria, contributed to "Gynecic Surgery," went to Rome two hundred and twenty years before Christ, where he wrote a valuable book. He was the oldest historian of medicine. He takes pains to assure his readers that he dissected human bodies to obtain his knowledge.

Aetius was a surgeon of prominence in the sixth century. His writings

were numerous and valuable. He operated for aneurism, discussed the subject of hernia, wrote on encysted tumors, injuries of the nerves, diseases of the eye and ear, etc.

Paul, of Ægina, was his successor, and a surgeon of merit in the seventh century.

The school of Salerno, which existed from the eighth to the thirteenth century, had some of the elements which go to make surgeons. One who wished to be a surgeon must follow the teaching of the faculty one year, but he must devote himself, above all, to acquiring *anatomy*, without which he could not safely perform any surgical operation, or direct the subsequent treatment. This school was supposed to have arisen out of the scattered fragments of the Alexandrian school. So the taper, lit at Alexandria, which began to illuminate the darkness of anatomy, still shone brighter, and began to dispel the darkness and gloom of human suffering, by its reflections on the glittering scalpel of the surgeon from the eighth to the thirteenth centuries. To this school people were attracted from all parts of Europe; Robert, Duke of Normandy, stopped there on his return from the Crusades to be treated for a wound in his arm. William of *Sulicet*, who lived in the thirteenth century, was the first surgeon in this period to write out his own experience and not blindly follow the opinions of his masters and those taught by Galen, centuries before. Lanfrank, a student of William DeSulicet, practiced surgery in the city of Milan, but surgery rather declined in his day. Gui DeChauliac, famous as a barber-surgeon in the fourteenth century, studied and saw dissection in Bologna, and insisted on the use of the bodies of criminals for that purpose. He practiced mostly in Lyons, and was the author of a remarkable treatise on surgery, the first work published in Europe after the Middle Ages, and for two centuries it was classical. He was honored by Pope Clement VI.

Poultices, ointments and embracations were the only resources in Western Europe before the time of Chauliac. He re-established the practice of such operations as had been described and practiced by the ancient Greeks and Arabians, and really laid the foundation of surgical literature.

Gui DeChauliac, in his book, "The Inventory," gives a glance at the progress of surgery since Hippocrates. He names a great many Greek, Arabian and Latin authors; he omits Celsus and Ætius. "The sciences," he remarks, "are created by successive additions; the same man can not lay the foundation and perfect the structure. We are as children carried on the neck of a giant; aided by the labors of our predecessors we see all they have seen and something besides." So he brought to the foundation of surgical science the stones quarried by his predecessors during seventeen centuries, leaving to posterity words of wisdom and goodness which should be deeply impressed in every surgeon's heart. He recommended that "a surgeon be learned, expert, ingenious; that he be bold where he is sure, and timid when in doubt; that he avoid bad cures and practices; be gracious to the sick; generous to his companions; wise in predictions; chaste, sober, pitiful, and merciful; not covetous, nor an extortioner of money, but receive a moderate fee, according to his labor, the abilities of his patient, the character of the issue or event, and his own dignity."

"Never," says Malgaigne, "has medicine had a language stamped with such

nobility, and in so few words." An attempt was made to place additional anatomical stones in the foundation of surgery by Mondini, a professor at Bologna, in the year 1315. He dissected the bodies of two women. His own conscience did not seem to be well satisfied by the operation, since he was afraid to open the head lest he committed a mortal sin. From the thirteenth to the fourteenth centuries the prejudice against dissection began to abate. A man named Andrew Vesotias, born in Brussels, 1514, had the courage of his conviction to dispute all theories advanced by Galen more than one thousand years before—theories obtained by dissection of the lower animals. His zeal was put to the test in obtaining his first skeleton. Having observed the bones of a criminal who had been burned at the stake, he found them so firmly bound by iron chains that it took him all night to detach them. This same *heroism*, shown in dispersing the prejudice against human dissection, completed the anatomical foundation for our present surgical temple, from the tower of which the electric light of surgical science shines forth, dispelling the gloom along the pathway of millions of human sufferers, and secured for all future ages the blessings which surgery offers to humanity. I would, at this point, do injustice to many noble women I have known, did I not mention the fact that a woman named Madonna Manzulina was among the distinguished professors of anatomy at Bologna, in the fifteenth century.

In 1515, a reconciliation took place in France between the physicians who were willing to descend to the rank of operators and the lay surgeons who aspired to the level of doctors in medicine. The barber-surgeons were admitted to lectures with the doctors, they following the course of anatomy and surgery.

The life of Ambrose Paré was closely related to the triumphs of surgery, during his lifetime. He was born at Laval, about 1510; first apprenticed to a barber-surgeon, after which, desiring to improve himself, he went to Hotel Dieu, Paris, and subsequently, by zeal and labor, elevated himself to the rank of the first surgeon of that age. Before his time, authors who had spoken of gunshot wounds considered them as poisoned and complicated with burning; consequently, the treatment was to cauterize them with boiling oil, or red-hot iron, and give remedies internally to arrest the progress of the poison. These theories had gone without contradiction until Ambrose Paré dared to protest against them. For a time he applied the actual cautery in hemorrhage, but he continued to meditate over the subject, until an opportunity presented itself after the siege of Damvilliers. A gentleman having his leg crushed, it was amputated by Paré, who ligated the arteries and did not apply the cautery. He had the happiness to save his patient, who was full of joy at having escaped the red-hot iron, and surgery which, in military practice, had been a horrid torture, became a blessed art. This advance came from a barber-surgeon who had *sense*, and not from the scholarly priests. Ambrose Paré, in 1550, after one of the great battles, trephined and cured a man, who, having been struck by a fragment of stone on the head, lay insensible fourteen days. The doctrine taught by Paré was rapidly disseminated. Maggi, a physician of Bologna, observed that those shot felt no heat—their clothing showed no trace of burning. He shot balls through packages of powder without setting them on fire. Lange and others made

the same discovery in Germany, all keeping back the true authors' names. How different a man was Paré, who says: "I have dispensed liberally to everybody the gifts that God has conferred upon me, and I am none the worse for it, just as the light of the candle does not diminish, however many may come to light their torches by it." The examples of Ambrose Paré and Baron Larry afford striking illustrations of the happy influence which the military surgeon is capable of exerting over the minds of soldiers in time of war in inspiring confidence in their leaders and in their own personal safety. When the father of French surgery appeared at Metz, the soldiers, exhausted by hunger and fatigue, crowded around the great surgeon the moment they saw him approach, exclaiming: "We no longer have any fear of dying even if we should be wounded, Paré, our friend, is with us." The great Napoleon declared that Larry, who followed him through all his campaigns, was the most honest and upright man he had ever known. Larry extended the same care to the enemy's wounded as to those of the French. At Essling, he killed his own horses to make soup for the wounded when other food was wanting. "If the army ever erects a monument of gratitude," said the emperor, "it should be to Larry." "Sire," said this great Baron Larry, with unswerving integrity, to the first Napoleon, on a memorable occasion, at the siege of Joffa, "it is my vocation to prolong human life, and not to destroy it."

John Hunter, born about 1728, the son of a farmer, first set out to learn the cabinet-maker's trade, but soon placed himself as an apprentice to his brother William in a dissecting room. As an operator he was the greatest surgeon of his time. As an anatomist and physiologist he displayed a keenness of intellect, a faculty of generalization and philosophic turn of mind which ranked him among the greatest of natural philosophers. His celebrated museum, named after him, contained ten thousand preparations illustrating anatomy, physiology, pathology and natural history, so arranged as to show the simplest forms of life up to man. His physiological series contained one thousand skeletons, three thousand animals and plants illustrating natural history, the animals stuffed or preserved in alcohol. He left, in addition, nineteen MS. volumes of material for a catalogue of his most wonderful museum.

Did time permit, other names could be added of men whose lives, like John Hunter's, were interwoven with the progress of surgery in the latter part of the last or beginning of the present century—Raux, Lisfrank, and Dupuytren Velpeau, of France; Abernathy, Cooper, Brodie, and Lawrence of England; Cusack, Compton, and Colles, of Ireland; Bell and Syme, of Scotland; Graefe and Rust, of Germany; Scarpa and Porta, of Italy; Physic, of Philadelphia; Mott, of New York; Warren, of Boston; and Dudley, of Kentucky—men who in their respective countries stood head and shoulders in talents, influence, skill and attainments, above most of their contemporaries. I have named a few surgeons who, in the past, could be seen above the common mass of their fellow-workers. The present century could furnish many names of surgeons whose deeds of self-sacrifice in the cause of humanity are worthy of record. On every battlefield, in every hospital, every scene of accident, by steamship, railroad or carriage, has had surgeons to act the part of the Samaritan to those who on life's journey had fallen by the wayside. That those I have mentioned were greater than those named only by their work I

dare not say, since I voiced the fact in saying, men who achieve fame are often the creation of favorable surroundings and auspicious circumstances; circumstances which more frequently make men than talents or genius, or great and intrinsic merit. Again, circumstances powerfully contribute to development and gives saliency to character. Men who succeed to-day need be ashamed of nothing, unless they get their start through a *partnership*, which helped them to *dead men's shoes*, or by being the *son-in-law* of some *wealthy and influential* citizen.

By surgery the skull has been opened with trephine, tumors removed, depressed bones lifted, and those otherwise doomed to epilepsy, insanity or death have been restored to health and happiness. The eye is now cut into by specialists, cataracts removed, or a piece of the iris cut out, and those who were shut out from the lights of the world are once again permitted to gaze on the beauties of the earth, including the faces of dear loved ones. Children *dying* from membranous croup can now, by skilled expert hands, have tubes put in the windpipe, while weeping parents rejoice in the blessings that even "*a cut-throat*" can bring to their precious darlings. In my last *Surgical Journal* there is a record of ninety cases of removal of the larynx, mostly for cancer, and the substitution in some cases of a silver voice tube, with an unexpected per cent of cures—several of the operations by American surgeons, and one of the cures was made by Dr. Roswell Park, formerly of Chicago, now of Buffalo, New York. The chest has often been tapped for pleurisy, one Dr. Bowditch, of Boston, having done the operation three hundred and twenty-five times. The sack containing the heart has been emptied of dropsical accumulations by the aspirator needle. Dr. Mott, of New York, when but thirty-four years old, and without chloroform, placed a ligature around the great innominate artery, only two inches from the heart, demonstrating the possibility of an operation, which gave him world-wide fame as an anatomist and surgeon. The same operation, repeated by Dr. A. W. Smyth, of New Orleans, in 1864, rescued a human life from impending death.

To my mind, the great event of all surgery, an event which signalized the morning dawn of what is now the brilliant noonday of abdominal surgery, was chronicled *not* by a city doctor of style and gusto, but by one who, like the immortal Jenner, was a village doctor, who had opportunity to meditate, possessed of far-seeing wisdom, and old-fashioned common sense. Dr. Sutton describes the circumstances so nicely that I use his words:

"In the bleak cold of a December day, in 1809, a woman riding on horseback arrived in Danville, Kentucky. She had taken farewell, perhaps forever, of relatives and friends, and had just completed a journey of sixty miles, that she might be near a surgeon who had promised to open her abdomen and attempt to remove the large ovarian cyst it contained. She was to be the subject of an experiment—an experiment at the hands of a surgeon living on the borders of civilization—an experiment which would involve her life, and to which she must submit without the blessing of chloroform or ether. This woman, possessed of marvellous courage, was Mrs. Crawford, McDowell's first patient in ovariectomy, and the first patient upon whom the operation was ever deliberately undertaken. She recovered and lived to the advanced age of seventy-nine years, a period of thirty years beyond the op-

eration. The conditions surrounding and forming part of this operation are worthy of more than a passing notice. At the present time they are declared by the ablest operators to be of more than accidental importance.

"In the light of all recent advances concerning the environs of an ovariectomy patient, I ask you to listen thoughtfully, and inquire of yourselves: Have modern operators had better environments than McDowell did? Is their quarantine better than his was? Whether accident, or necessity, or the simplicity of border life provided these conditions so favorable to recovery, your orator will not inquire, but hopes to show that McDowell did operate under conditions as favorable as does Dr. Keith or Mr. Lawson Tait.

"1. The patient was refused operation in her own home.

"2. She was operated upon in Dr. McDowell's own house.

"3. History mentions but one assistant present at the operation.

"4. The patient had never been tapped.

"5. We may safely infer that the room in which the operation was performed contained, at this early date in Kentucky, no superabundance of furniture or upholstery.

"6. That the room was ventilated by an open fireplace is more than probable.

"7. The atmosphere was that of a healthy border town.

"8. No sponges were introduced into the abdomen.

"9. He ligated the pedicle and dropped it in.

"This operation will stand the criticism of the most exacting specialist of the year 1885, save in two particulars, viz: The ligature was not carbolized or scalded, the ends of it were left hanging out of the lower angle of the wound, and merely turning the woman on the side to permit all fluid to escape from the cavity of the abdomen was scarcely enough in that direction.

"Pause a moment! Think; at the end of almost three-quarters of a century, the operation stands almost where McDowell left it, with one solitary exception, viz: The ends of the ligature surrounding the pedicle are cut short."

This operation, planned and executed by a thinking agent of divine wisdom, has added thousands of years to human life and relieved untold sufferings of women. By this operation women are now rescued from what seems inevitable, and almost immediate, death. "By this operation," says Holmes, "the surgeon carries the lamp of life and light into the shades of impending gloom, the message of hope into the dark, dark realm of despair, and sometimes gives life in the place of ashes for which the inevitable urn seemed already waiting." This operation, like an electric light, has illumined the midnight darkness of abdominal surgery.*

To-day, we read of Billroth of Vienna, and others, removing sections of the stomach for cancer, and removal of sections of the bowels for wounds from bullets, adhesions from tumors, mortifications following strangulated hernia, are established resources of surgery.

I read in our *Daily Journal*, February 5, of Dr. Bull, New York, removing

*The attempt to place this operation among those to be undertaken by every one who does surgery or teaches obstetrics, or practices gynæcology, is wrong. It has cost lives, and it can no more be done than can cataract be successfully removed from the eye by every surgeon. That operation has long been given over to those specially fitted by nature, by knowledge of anatomy and pathology, by instruments and by skill.

five inches of intestine and patient recovering, as if it were new and wonderful. Dr. A. Brigham, notwithstanding, in 1845, removed seventeen inches of the small intestine, and the patient made a good recovery.

Opening the abdomen and removal of gall stones, first done by Dr. J. S. Bobbs, of Indianapolis, on June 15, 1867, is now a well-established surgical means of relief to these terrible sufferers. The back is now cut into and stones extracted from the kidneys, or the organs removed, the patients recovering.

The bladder has been cut into and stones extracted thousands of times. Dr. Dudley, of Kentucky, reported 207 operations by himself, with only six deaths. Scarcely a cavity, recess or organ of the human body has evaded the needle or knife of the anatomical surgeon. And here let me remind you of the fact that much of this surgery was made possible by the heroism of *woman* in having the first abdominal section for an ovarian tumor. Speaking as a surgeon who has passed his score of years at the work, I have no hesitancy in declaring that women often accept surgical operations to which their husbands, brothers or sons would be too cowardly to consent. Especially is this true where she has the confidence of the one who is to do the work. The strongest obstacle in the way of women doctors becoming distinguished in the surgery of her sex is the well known fact that it is her nature to cling to man (in the hour of danger) for relief from diseases or otherwise. This may explain that centuries ago when, by law, men were forbidden to practice gynecology, that science retrograded. Be this as it may the fact remains clear to my mind, that without the bravery of woman to undergo surgical operations, the genius of Simpson, Wells, Tait, Atlee, or even Sims, could never have placed the department of woman surgery in the wonderful state of perfection it is to day.

The great problem during the ages had been how to prevent pain during surgical operations.

The fear of suffering pain strikes many human hearts with terror. It is sometimes more dreaded than death. *Pain* was the great agent of the Spanish inquisition, from the well known fact that it was more powerful to extort confession than even death itself. *Pain* humbles the proudest and subdues the strongest, and as the mighty engine, with its nerves of steel, its blood of steam and breath of fire, after crossing a thousand miles of railway, can be made powerless by the displacement of a bolt, so heroes of an hundred battles, in all their independent glory, can in an instant be made most dependent and humble, writhing and even shedding tears like children, by pressure of a single nerve, as in tooth-ache; or physical organism be thrown into discord, resulting in a death of unspeakable misery, by the prick of a finger producing tetanus. Human sympathy has always been devising means of lessening human suffering and human sorrow.

The use of poppy, henbane, mandragora, hemp, etc., to deaden the pain of execution and of surgery, may be traced to remote antiquity. In China, in the year 220 hasheesh was administered and painless operations performed, the patient recovering after a number of days. Pliny, who perished A. D. 79 says of the mandragora: "It is drunk before cuttings and puncturings, lest they should be felt." Dioscorides gives an elaborate method of preparing mandragora to produce anæsthesia in those who are to be cut or cauterized, "or sawed," and who, in consequence, "do not feel pain."

The ideal method of controlling pain was not secured until 1844, though at the beginning of the century Sir Humphrey Davy suggested nitrous oxide. Forty years later Morton gave to the world ether, and soon after Sir J. Y. Simpson chloroform. The knife has been robbed of its terror. To-day we see the glittering steel, raking saw, and sizzling cautery severing the condemned structures from the precious living, while the patients enjoy their lethean dreams. Vaccination has saved its millions of lives. The clinical thermometer, like the steam-gauge on the engine, warns us of fatal variations of temperature; but chloroform has, in tens of thousands of instances, not only saved lives, but has controlled that which gave more of terror than the *grim* visage of death. For one moment think of the pain controlled by the eight thousand administrations referred to by Simpson. Turn loose your imagination till it encompass the writhings and agony controlled by the twenty thousand inhalations reported by McLeod in the Crimean war. Let all the occult sympathies of your nature arouse, and let your heart-throbs carry blood in vitalizing currents to your brain, while you apply your mathematics and tell us of all the torture and anguish prevented in the more than one hundred thousand administrations to brother soldiers in our late civil war. Grasp in your mental vision the tens of thousands of administrations reported in other wars. Add to these the millions of inhalations in cities, towns, villages, and homes never reported at all, and apply your most subtle powers of calculation, and tell us how much chloroform has blessed humanity.

Surgery, then, an offshoot of the barber's trade, has triumphed in grand achievements until Lister, by scientific research, proves that all fermentation is molecular life, and that this atomic growth in wounds has, by poisoning the blood, destroyed thousands of lives that surgery would otherwise have saved, proclaims the gospel of clean surgery, and is made Sir Joseph Lister.

Wells persisted in opening the abdomen of woman for the removal of ovarian tumors, until he had done it over a thousand times, and is honored as Sir Spencer Wells.

Our American Gross, from youth to ripe old age, uses all his life's forces as fuel for the fires of professional enthusiasm, and writes out in many editions his great system of surgery, giving the profession a text-book which secured for him the highest title the universities of the world could confer.

Marion Sims struggles on in earnest attempts to cure black women of loathsome fistula until doctors refuse longer to help hold them, declaring his work a failure. He then gets the slaves to hold each other while he operates, boarding them at his own expense until, when his health and purse were exhausted, he moves to New York, writes out his cures, that State erects a State woman's hospital, puts him at its head, and he is welcomed in the principal cities of the Old World. His life, brought to a close only last year, had wrought so much for woman that grateful hearts marked his resting-place with a marble shaft.

Dr. Batty, of Georgia, moves to amend McDowell's operation by removing badly diseased ovaries; while Lawson Tait, profiting by the wonderful success of Thomas Keith, of Scotland, moves to amend both McDowell's and Batty's operation, and has performed the combined operations twelve hundred times, the last one hundred and twelve without a death.

These men have brought to the temple of surgery the tithes of their experience that they might be tested in the crucible of truth, and if among the dross there was found an atom of gold, they asked no better patent for the same; they created no new schools nor sects in medicine, but cast their trophies on the common altar of our God-like calling, that it might bless mankind. *Still, without the books written with their pens, guided by their liberat minds, and instruments the creation of their genius, the so-called "New School Doctors"—those branded with "sectarian trade-marks"—would find it difficult to obtain a following, though they tickled the palates of fashionable people with sugar pellets, or their ears with the euphonious title of a "pathy," an "ism," or an "ick."*

Enough has been said as to the present state of surgery. Could the surgeon's knife, wielded by some dexterous hand, cut away the curtain and let the light of God's love into some of the dark corners of human society, the future of surgery might know of its impossibilities as well as its possibilities. For the fact ought to be known, that *some* of this work in the surgery of woman has come in obedience to the law of supply to a demand which is the outgrowth of our modern civilization. As the curtain can not be cut away, shall I venture to make an incision or two that some of you may peep through? and I hope none will hesitate lest they see themselves as in a mirror darkly.

Look, and see how the great Moloch of fashion, like an exhaust-pump, is sucking the lives out of our beautiful women, and doing it so gradually they don't know what is killing them. See that sickly, maudlin sentiment which seeks to replace the life-giving music of children's voices with the twitter of caged birds, or satiate *maternal love* with the companionship of pug-nosed dogs. Hear our clergy expound the laws of God against sin; read how our courts put the death penalty, as the law of man, on *murder* in the first degree, and don't faint while you ponder how wives conspire with their husbands, druggists, and sometimes with their doctors, to commit *murder* in the *first degree* of their offspring's existence.

This may fall like a note of harsh discord in the music of fashionable society. In uttering it I struggled *prayerfully toward* my duty—and should the conscience of any inquire, "is it I?" please don't be harsh with your criticism, lest I retaliate by saying, "no rogue yet felt the halter draw with just opinion of the law."

I am asked, "Why so many weakly girls?" I answer, why this buckram red tape of our schools, which, like the sausage mill, is *annihilating the identity* of the *muscles* and *sinews* brought within the *revolutions* of their *grinding cylinders*. How cruel to overtax the brains of our girls, at the critical age (between 10 and 15), rendering them unfit for the physical duties of life, while their projecting shoulder-blades suggest the sprouting of *angels' wings*, and mark their progression toward the *spirit land*.

In securing a life insurance policy, the individual must state truthfully all the diseases he has had. If he makes a false statement the policy is forfeited. Oh, that parents could secure from young men such a written contract when life's policy calls for their daughters in wedlock. The young man's statement need not include diseases caught in the atmosphere of the Sabbath-school room. Let young ladies beware of the young man whose undue flattery and exceedingly fascinating ways bespeak a familiarity with many kinds of women.

When shall the surgeon's knife sever the tendons in the arm which wields this *merciless flail* of fashion that is beating the wheat from the nerves of our women, leaving only chaff and fine straw, to be blown away by the slightest emotional breeze?

When will women know that to have their mother's strength they should have observed how they ate, how they drank, how they slept, and where-withal they were clothed? Echo answers, When?

The wonderful possibilities of surgery in removing disease from women's bodies is only equaled by the impossibilities of its removing clouds from their *mental* horizon—clouds *dark* and *gloomy*, which send them to the doctor, the insane asylum, and the tomb. Their pitiful stories of unrequited love make our hearts ache when we reflect what *brutes* some men are:

'Tis true a heavenly erected face the smiles of love adorn,
Man's inhumanity to woman makes countless millions mourn.

I have often wished (when being consulted by women, whose bereavements, like the sledge-hammer on the magnet, had crushed out all of magnetism and life) that I could prescribe some "oil of joy for mourning, or some garment of praise for their spirits of heaviness." The black, dismal apparel worn in memory of the dead, to me only expresses how fashion and custom, by their tyrannizing laws, compel eyes to rest continually on clothing which reminds them of their loneliness, their bereavement and their sorrow. Hearts wounded by Divine affliction, kept raw and irritated until blood-poisoned by sorrow, they seek the doctor in the vain hope of relief. Could surgery, with scissors and forceps, cut away those long crepe veils and pick off those black ornaments, replacing them with that which would invite the mind to the living rather than the dead, it would add another to the list of measures calculated to prolong the lives of women,

" — Whose hearts do break and show no sign,
Save whitening lips and fading tresses,
Till Death pours out his cordial wine,
Slow pressed from misery's *crushing* presses.
If singing breath and echoing chord
To every silent pang were given,
What endless melodies were poured,
As sad as earth, as sweet as *heaven*."

The beauty of Cleopatra, together with her noble effort to save the library, are but typical of the beautiful lives and magnificent achievements of those who, like Marion Sims, have labored to place the surgery of her sex as the most beautiful pillar in the ancient temple of Medicine.

"See, where aloft its hoary forehead rears,
The towering pride of twice a thousand years,
Far, far below the vast incumbent pile,
Sleeps the gray rock from Att's *Ægean* isle;
Its massive courses, circling as they rise,
Swell from the waves to mingle with the skies:
There every quarry lends its marble spoil,
And clustering ages blend their common toil:
The Greek, the Roman, reared its ancient walls;
The silent Arab arched its mystic halls.
In *that* fair niche, by countless billows laved,
Trace the deep line that Sydenham engraved

On yon broad front that breasts the changing swell ;
 Mark where the ponderous sledges of Hunter fell.
 By that square buttress, look where Velpeau stands,
 The stone yet warm from his uplifted hands.

There, where the western sun pours down his rays,
 And gilds the efforts of more recent days,
 Mark that proud column—our eyes its splendor dims—
 Quarried by Rush, and reared by Sayre and Sims."

The century which in a few years will have moved on to the eternal past, has furnished the magnificent temple of Medicine many columns of surpassing beauty and grandeur, while its surgical pillars have risen high toward heaven, where, as gilded towers, they fain would vie with the God-given sunshine in dispelling the chill and gloom of human agony.

Chirurgia's tower, thy lights resplendent blaze,
 Dries woman's tears and lengthens out her days.
 McDowell and Batty, of Columbia's clime,
 Began the work pushed onward high sublime
 By men for whom undying laurels wait,
 Like Keith, of Scotland, or like Lawson Tait.

CHARGE TO THE GRADUATES.*

GENTLEMEN OF THE GRADUATING CLASS :

On behalf of my colleagues I extend to you a cordial welcome. Meeting you, as I do, at the threshold of the temple of medicine, I congratulate you for having chosen a calling in which if you benefit yourselves you will bless others; a calling of which it was said: "Restoration and preservation stand next in rank to creation."

I trust each and every one of you has asked and answered the question in his own mind, "Shall I remain where I fall into the ranks, or shall I achieve distinction in the great army of doctors, and make the battles of life a success?" I say "battles" for I would have you know that those who have honored themselves in the great enterprises of the world, had their heads and hearts set on one object, and were resolved on victory or death.

If any of you have genius, that genius will take care of itself, provided you ever remain mindful of the fact that the great levers of social progress and individual success are hard workers. There are exceptions to all rules, even the one that "Success rewards industry and crowns merit." Still I would remind you that good rules are to be followed, if they do have exceptions, and that the surest way to achieve honorable preferment is to merit it. "You must have a faith in something, an enthusiasm for something, if you would lead a life worth being talked about." Do you not remember when first you entered medical college how half distracted you were when you thought, "Can I ever remember half the anatomist, the physiologist, or the

* Delivered without manuscript.

chemist was striving to explain?" But time passed, and diligence cleared up matters, till now your examination has proven your progress. Put yourselves at the distant end of ten or twenty years, the interval of which has been utilized in expanding the narrow limits of knowledge which environed you at the onset, and you will be as much surprised at the professional resources at your command as you were appalled at the task before you when you entered college. "A knowledge of ignorance is the beginning of wisdom." Keep yourselves before the mirror of conscience and often ask, "Am I striving to be what I would be considered?" As the good old couple advised their newly-married children, if they would live a happy wedded life, to keep on courting, so you are reminded, if you but continue with the same fidelity after as before the graduating ceremony, which is to unite you to your profession, as your bride you will find her possessed of new beauties, which from day to day shall inspire in you a deeper and a purer love. Would that teachers might say no less to fill young doctors' heads, but more to touch their hearts and kindle there the fires of professional enthusiasm; work them up to a sincere faith that they were born for doctors; educated for doctors; that they should live as doctors and die as doctors, leaving out all side issues, remembering,

"One science only can one genius fit,
So broad is art, so narrow human wit!"

1st. If you are to succeed, you must be thoroughly prepared to do business. You ought to be an expert in some given department of your profession.

2d. You must go where business is to be done, stay in one place a lifetime, and do business on strictly business principles; exhausting your sympathy and sentiment during your attendance on patients, but collect your money as your grocer does—in a business way.

3d. You must maintain an unquestionable character, bearing in mind that Washington had not yet reached his dotage when, in his farewell address, he said: "Let us with caution indulge the supposition that morality can be maintained without religion." The conscientious Christian physician enters the sick-room feeling a responsibility to his Creator and to his fellow-beings which another can not comprehend.

As you go forth to engage in the God-like art of healing the sick, I trust you will enter the homes of the rich, that you may know how unhappy they sometimes are, even when surrounded by all that heart ought to wish. I hope you will visit the homes of extreme poverty and wretchedness, that you may see how human beings in degradation, want and misery can eke out a miserable existence. As the truth often lies between the two extremes, so the typical happy home is not determined by either poverty or riches, but is often found in the middle class of society,—in the pretty cottage home, with beautiful pictures placed on the walls with loving hands, and mottoes, "God Bless Our Home," "Simply to the Cross I Cling," etc.

Would that I commanded words sparkling as diamonds, and could weave them into sentences of gold, to express the almost sacred relation of the doctor to the home he enters. It is there the mother, wife, sister or daughter, with the acute perception so much a part of the sincere womanly nature, will

have arrived at a conclusion as to the kind of a man you are long before you have finished taking observations as to the class of people you are among, and the kind of home you have entered.

I trust your ears will ever remain acutely sensitive to the exquisite music in the word home. "Home, Sweet Home," was dear to many hearts long before Payne wrote the verses. The sweetest melodies of the strain are borne on the ripple of childhood's merry laughter, and the richer tones which warm our souls into new life, as in poetry or prose we accent the word mother.

"How fair is home in fancy pictured theme,
In wedded life, in love's romantic dream;
Thence springs each hope, there every spring returns
Pure as the flame which upwards, heavenwards, burns.
There sits the wife whose radiant smile is given—
The daily sun of the domestic heaven.
And when calm evening yields its secret power,
Her looks of love emparadise the hour
Where children in a beautiful train appear,
Attendant stars, revolving in her sphere."

Oh, what a future is in waiting for those of you who are zealous in the grand work of the physician! The cause is worthy the best efforts of our entire lives. What if conscientious anxiety about our patients shorten our lives! What better use can we make of our God-given bodies than using them up in rescuing the lives of others? And *do* we shorten our lives?

"We live in deeds, not years; in thoughts, not breath;
In feelings, not in figures on a dial.
We should count time by heart-throbs,
For he lives most who thinks the most,
Who feels the noblest, acts the best.
Life is but a means unto an end.
The mean beginnings end to all things, God."

No calling or profession gives so many golden opportunities to do for humanity and for God. If rescuing a child dying from convulsions, a mother from hemorrhage, or patient from impending death, by a bold and skillful surgical operation, will not inspire you to higher efforts and convince you that the service of humanity is the service of God, then indeed you have mistaken your life's work.

"Remember these thoughts to be grandly true,
That noble deeds are as steps toward God,
Raising the thoughts to a broader view;
Lifting the soul from the common sod."

I would stop short of my whole duty to you did I not refer to the powerful influence of woman in holding up all that is moral, all that is Christ-like, all that tends to make humanity happier and better. It is well for you who are to advise in that which so largely contributes to human happiness, human health, to know the deep though silent current of woman's religion. The Rev. Myron Reed said, in a sermon in this city, that the tombstones, as reminders of death, would alone maintain the Christian religion. For my part, I would be willing to entrust the morals and religion of the world to the women. I would trust them to build up as fast as the worst of

blatant infidels could tear down. Let Mr. Ingersoll boast that he lectured to fifteen hundred attentive auditors at our Park Theater. During the same two hours fifteen thousand mothers in our State alone will have caused the patter of little feet to give place to bended knee, while with upturned face they lisp their evening prayer. Oh, how the mothers are molding character by prayerful watchfulness! And who so well as the physician knows their willing devotion?

“Calling the little ones all 'round her chair,
Hearing them lisp forth their sweet evening prayer,
Telling them stories of Jesus of old,—
How he delighted to call little lambs to his fold.
Hearing, they listen with wearied delight;—
That's what mothers are doing at night.
Creeping up softly to take a last peep,
After the little ones all are asleep,
Anxious to know if the children are warm;
Tucking the blankets 'round each little form,
Kissing each little face rosy and bright—
That's what the mothers are doing at night.
Kneeling down gently beside the white bed,
Lowly and meekly she bows down her head,
Praying as only a mother can pray,
'God bless and protect them from going astray.'”

Gentlemen, it is these lasting impressions that women make on children's minds at the family altar and around the domestic hearthstones, upon which I would rather depend for reformations in morals, religion, or even politics, than upon all the enactments of senates or political conventions. Can anything rise higher than the source from which it emanates? The law-making powers, especially of cities, can do little to increase the measure of human happiness, while among their number are to be found those who are *particeps criminis* in immorality and crime.

Gentlemen, I again congratulate you on having chosen such a high and noble calling. A life well spent in the conscientious discharge of each and every duty which devolves on you as members of the medical profession, ought to give you more satisfaction than shining gold or sparkling diamonds. A life well spent in discharging the high duties and sacred trusts of the office to which we now elect you, should, at its close, fill you with joy that you have labored to lessen the crushing load of human suffering and human sorrow. With all the authority I possess, by virtue of my official rank, I command you; with all the love my heart contains for fellow-beings treading toward eternity, I beseech you, in all life's battles, quit yourselves like manly men, to the end “that when your sun of life shall set, it shall go down enshrined in that prophetic splendor which lays hold on an eternal dawn.”

Eastman Joseph of Indianapolis
The Evolution of Surgery.
16 pp. pap. 1886.

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