

Maister Peter Lowe and His 16th Century Contributions to Cranial Surgery

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Before the advent of neurosurgery as a discipline, various historic surgeons performed procedures on the skull and brain. One early pioneer of surgery, Peter Lowe (c. 1550-1612), not only wrote of methods of cranial surgery in his *Chirurgerie*, which was the first comprehensive text of surgery written in English, but also founded what would become the Royal Faculty of Physicians and Surgeons. Included in the powers given to him by King James VI was the authority to regulate the practices of medicine, surgery, and pharmacy in the west of Scotland. This 16th century Scottish surgeon trained in Paris, where he was influenced by Ambroise Paré and wrote about the "Spanish sickness." In his surgical text, Lowe wrote about his methods of multiple neurosurgical procedures. The present study discusses the life of Maister Peter Lowe and reviews his contributions to what became the art of neurosurgery.

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"The wounds of the head must in no ways be neglected."

Maister Peter Lowe, 1597

EARLY LIFE

Maister Peter Lowe was born in Scotland around 1550, and much of his early life is unknown (Figure 1).¹ He left to study in Paris when he was about 15 years old. He subsequently studied at the University of Orleans and qualified as a master chirurgian (surgeon) at the College of St. Côme (the Fraternity of Surgeons) in Paris.^{2,3} He described himself as "doctor in the facultie of Chirurgerie at Paris." While in France, he was obviously influenced by Ambroise Paré, although it is not clear whether the 2 men ever met.^{2,4} He served in both the French and Spanish armies, with the latter being in Flanders (located in parts of present-day Belgium, France, and the Netherlands). After the assassination of King Henry II of France, Lowe became "chirurgion-major" to the Spanish regiments in Paris for 2 years. Philip II of Spain had undertaken to provide military support for the French Catholics, which explains the presence of the Spanish military in Paris.⁴ The French Catholic army was no match for the Protestant army of Henry of Navarre (protector of the Huguenots, Henry IV of France), who

was the rightful successor to the throne and captured Paris.⁴ Thereafter, Lowe held an honorary appointment of surgeon to the French Royal house under Henry IV (ordinary Chirurgion to the French King and Navarre) for 6 years.³ From the side on which Lowe was serving, it appears that he was Catholic and must have changed sides about 1590, probably the same time he also changed his religion.⁵ Over a period of > 20 years, Lowe appears

...to have been one of the class of wandering Scottish scholars, soldiers, and adventurers, like Michael Scot in the thirteenth century, John Major in the fifteenth, and George Buchanan in his own time, who, finding little opportunity of learning and advancement in their own country, betook themselves to the continent and achieved distinction there. In 1596, he published his work on the "Spanish Sickness"....⁶

(syphilis) in London and was probably involved in espionage against England while there.⁴ In 1599, Lowe was hired by the city of Glasgow to care for the poor of the community.³

About the middle of the 16th century, Glasgow occupied only the 11th place in size among Scottish towns and had a population of only 4000 to 5000.⁵ By the end of the 16th century, the number of surgeons living in Glasgow was probably not more than 6 with only 1 physician.⁵

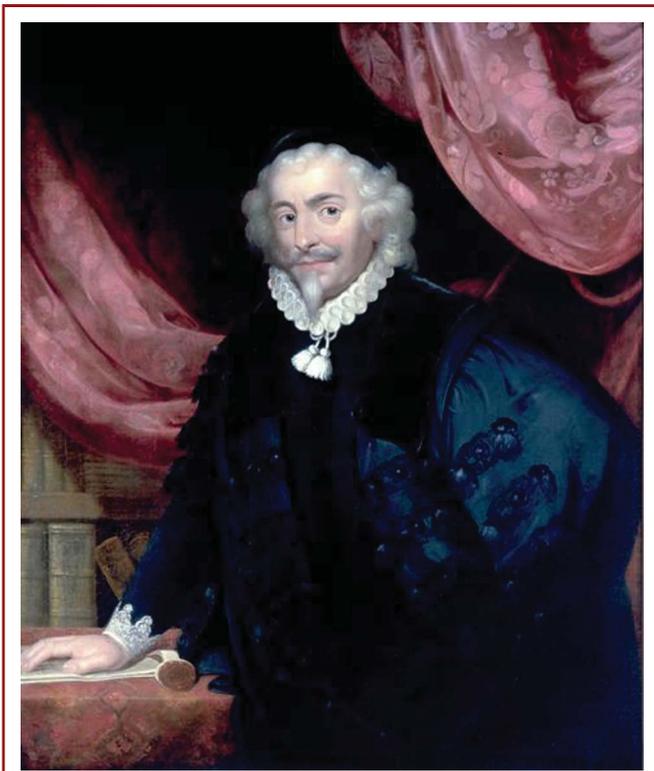


FIGURE 1. Nineteenth century painting of Peter Lowe, after an earlier work attributed to Daniel Mytens. Reproduction available on the ElectricScotland.com Web site at http://www.electricscotland.com/hiStory/glasgow/glasgow2_13.htm.

The Scotsman Maister Peter Lowe probably returned to his homeland and came to Glasgow in 1599.⁷ His choice to live in Glasgow after his return from Paris has been seen as an indication that his original residence was in the west of Scotland.⁵ In his writings, Lowe used the title Arellian, which may indicate that he was born in Errol, Airlie, or Ayr.⁵ We know that he was a friend of Gilbert Primrose, who was Deacon of the Incorporation of Surgeons (Barber surgeons) in Edinburgh, to whom, along with James Harvie, Surgeon to the Queen, and Robert Devereux, the second Earl of Essex and favorite of Queen Elizabeth I, he dedicated his surgical textbook, *The Whole Course of Chirurgerie*.⁵

THE WHOLE COURSE OF CHIRURGERIE

The Whole Course of Chirurgerie is dated “From London the 20th day of April, 1597,” and although the introduction was written in Latin, the body of the text was in English (Figure 2). Therefore, this treatise was the first comprehensive textbook of surgery written in English and was written for students who were to be examined in surgery.⁸ The book, which included a translation of the Prognostics of Hippocrates,³ was a compilation of his experiences as a surgeon abroad and was used extensively by Scottish practitioners, with later editions published in 1612, 1634, and 1654. Woven into the text are details of Lowe’s experiences, many the result of military service.

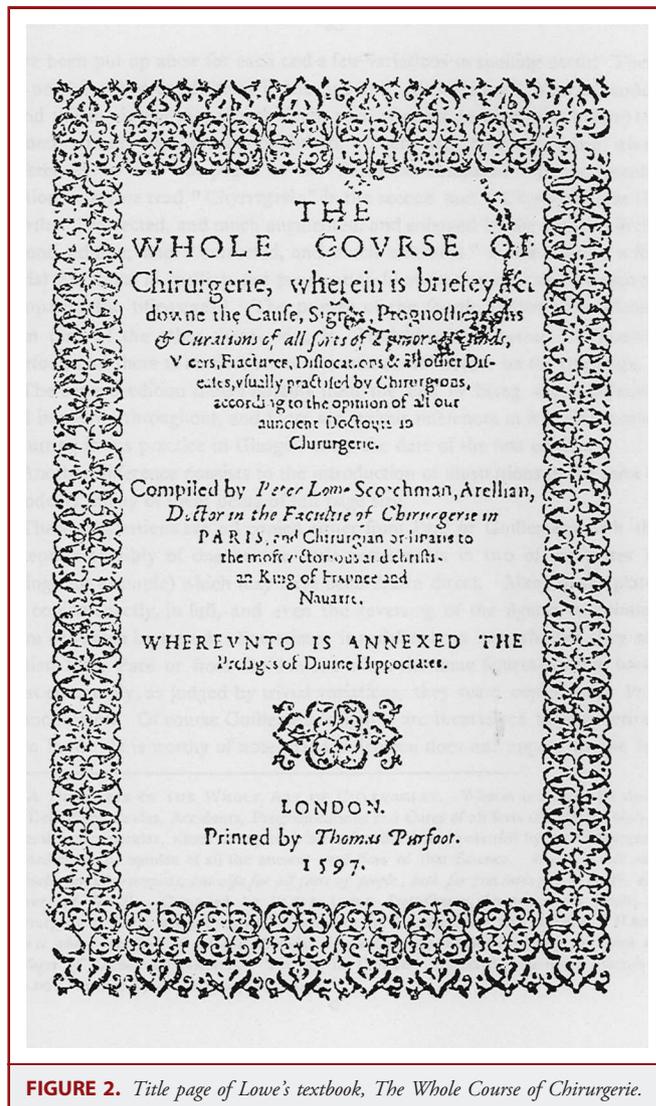


FIGURE 2. Title page of Lowe’s textbook, *The Whole Course of Chirurgerie*.

The main principle that Lowe espoused in his book was to “first know the disease.” The work covered such topics as tracheotomy, amputation, prosthetic devices, ligation of vessels (the first description of this seen in the English language), treatment of cancer, cataract, gunshot wound, toothache, anal fistula, subcutaneous emphysema, aneurysm, thoracotomy, hernia repair, lancing of abscesses, hydrocele, varicose veins, and varicocele repair.^{2,8} The influence of Ambroise Paré is evident in Lowe’s text in that some figures were exact copies of Paré’s.²

CONTRIBUTIONS TO CRANIAL SURGERY

In addition to the surgical methods described above, Lowe included multiple detailed directions for his methods of surgery of the cranium. The second edition of his text also illustrated tools he used for surgery of this area, including a selection of craniotomies

(Figure 3). Lowe discussed that fluid accumulation (hydrocephalus) within the cranium was incurable but that fluid found between the cranium and pericranium may be cured with surgery. In the second chapter of his surgical text,⁹ Lowe described what probably represented scalp abscesses, and if they involved bone, he recommended that “the humor must be evacuated and the exfoliation of bone procured.”

Lowe also remarked on another malady of the head called “commotion of the braines.” He stated that this malady is caused by falls from high places, bullets, lances, or the sound of cannon shot and that such injuries result in the “voiding of humors by the eare.” He also mentioned countercoup injuries of the brain as exemplified in the following:

The fift kind of fracture, is called counterclift, that is, when the cleft of the bone is in the part opposite to the sore, and of all fractures this is the worts, and deceiveth most the Chirurgion, for in it there is no signe but conjecture, and by feeling of the hurt man, in oft putting his hand on the place, and if he got the stroake with violence, falling

after he got it, and did vomit, notwithstanding there be no cleft where he got the stroke. I have knowne sundry dye in this case, chiefly at the battle of Sandlis in Fraunce a valiant Captaine of Paris, who had a stroake on the right parietary, who notwithstanding of all handling by skilfull Chirurgions, dyed wihint twentie dys, at which time his Cranium was opened, and there was found great quantitie of bloud under the left parietarie, with a cleft in the same.⁹

Lowe instructed that wounds of the head should not be neglected and that even small wounds here may result in “great accidents.” For skull fractures, he found that “sometimes the broken bone is a little lifted, so that the mater contained hath place to pass and therefore it is not nedefull to trepan the Chirurgian may not so hastily, as in times past, trepan for every simple fracture.” If “mattir in the wound, dresse it softly with bombast [cotton] or wash with sweete wine.” “We must know what places may indure the trepanned, & which not” and “we must not trepan on the fractures, for that cutteth the veins, arters & filaments, which passe betwixt the pericrane and dura mater, and cause great dolor and hemeage of bloud.”^{8,9}

For children, Lowe stated that the trepan not be applied “on the open of the head in young children, being yet soft and not solide, nor on the temples” and that sometimes “the cranium is pressed in by the stroke, chiefly in children, that have the bone yet soft.” His method of trepanation was as follows:

The way to trepanned is thus: First seitate the head of the hurt in good situation, and holden by some body, that it doe not wagge, close his eares with cotton, have a good fire, least the colde ayre enter on the membranes, which may make putrefaction, then the Trepan shall be applied, to make a hole for the pyramide of the great Trepan, next apply the whole Trepan with the pyramide, turning it about softly, till thou hast made a way with the teeth of the Trepan, then take out the pyramide, otherwise it shall pass & offend the membranes, continue in turning softly the Trepan, sometime to lift it, to put off the sawinges of bone, and when thou art at the duploy, which shall be perceuyed by the outcoming of the bloud, you shall consider it be needefull to passé further, as yee have heard, take a good heede in trepanning of the second table, lifting of the Trepan and sounding if it be neer cut, if it be more cutte on the one side that the other, presse the Trepan on the thickest part, and in this take good heede, for often in cutting the one before the other, thou seratchest the dura mater which causeth inflammation and death.⁹

Lowe continued with his description of what is to be used on the wound, including “honey of roses, syrrope of wormewood, aquauitae, myrrhe and white wine.” He ends this chapter by stating, “Chirurgians to the Kind of Scotland, men very expert in this operation, like as in all operations chirurgicals, God increase the number of such learned men in this Land.”⁹

ESTABLISHMENT OF THE ROYAL COLLEGE OF PHYSICIANS AND SURGEONS

Lowe wished to “eliminate all such ‘charlatans and empirics’” and to establish a college in Glasgow for the West of Scotland. He

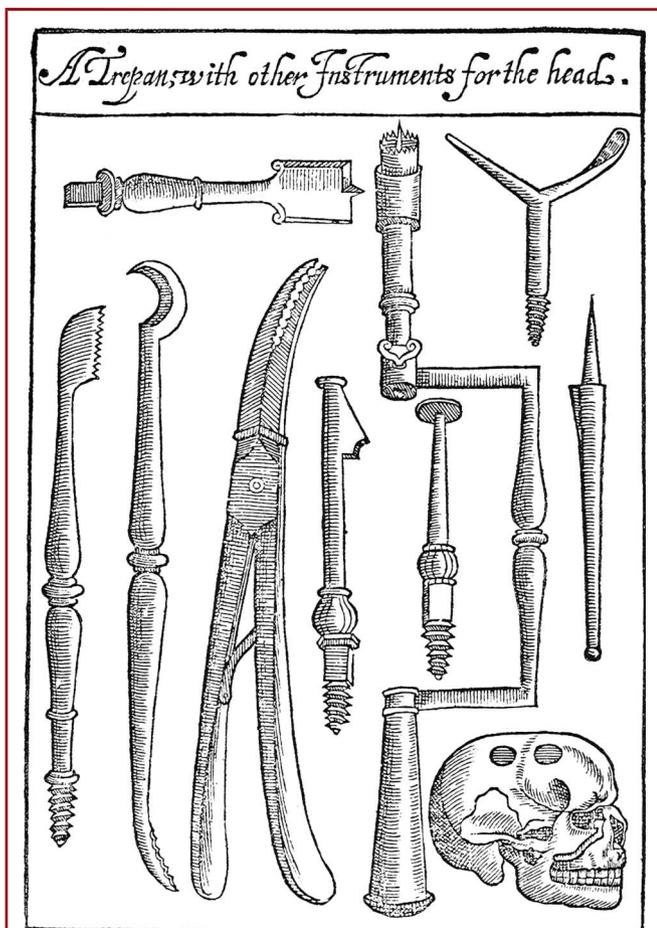


FIGURE 3. Illustration from Lowe's *Chirurgie* depicting his surgical instruments for cranial surgery.

appealed to King James VI of Scotland (later to become King James I of England), and (as quoted by Renwick and Lindsay⁵ from *Life and Works* by Maister Peter Lowe)

as a result procured a “gift,” “privilege,” or charter under the Privy Seal dated “Penult November, 1599.” By this charter, the king “makis, constitutis, and ordinis Maister Peter Low, our Chirurgiane and chief chirurgiane to oure dearest son the Prince, with the assistance of Mr. Robert Hamiltone, professoure of medicine, and their successouris, indwelleris of our Citie of Glasgow,” giving them full power to summon before them all persons professing surgery in Glasgow and the West of Scotland, to examine them as to their learning, and if found worthy, to admit them to the exercise of the art. At the same time, severe penalties were imposed on any who should practise without the necessary licence.⁶

This privilege given to Lowe and those like him was significant, especially if one considers the discrepancy in recognition between surgeons and physicians of the day. Surgeons of the day were often portrayed as a “necessary” evil, while their counterparts, the physicians, enjoyed greater social ranking. Although Glasgow may have been more “liberal” in the social positioning between these 2 disciplines, there was certainly still a degree of stigma that accompanied the surgeon.⁵

Surgery was taught in Glasgow by the apprenticeship system. The apprentice paid a fee and was indentured for 5 years, “finally submitting himself to an examination by the Faculty. Physicians had to produce a certificate from a famous University where medicine was taught. The nearest was London, but most Scottish students went to the continent, to Leyden, Utrecht, Rheims, or Paris.”⁹

This charter developed by Lowe and Hamilton “was, in fact, the foundation of the Faculty of Physicians and Surgeons. Under its provisions, the Visitors, as Lowe and Hamilton were termed, were required to attend every injured, murdered, or poisoned person and report the cases to the magistrates on the first Monday of every month”;⁶ they were to provide medical care for the infirmed poor; and they were “empowered to make statutes governing the profession, and to pursue and charge unlicensed practitioners.”⁹ This practice was undoubtedly implemented by Lowe because this was a rule at the College de St. Côme in Paris where he studied. In return for his overseeing the faculty, Lowe was given exemption from the bearing of armor, paying of taxes, and serving on jury.³

This authority of licensing for medical practice extended over the burghs of Glasgow, Renfrew, and Dumbarton and the Sheriffdoms of Clydesdale, Renfrew, Lanark, Kyle, Carrick, Ayr, and Cunningham, thereby including most of the southwest of Scotland. It was the duty of the faculty to examine and license surgeons, but physicians were to be called on only to produce the diploma from their university. Because none of the Scottish universities at this time granted degrees in medicine, this was pertinent to graduates of foreign universities who might be expected to settle in Glasgow. Finally, the charter obligated all law officers and magistrates to enforce the decisions of the faculty.

This regulation of the practice of medicine, surgery, and pharmacy in essence marked the beginning of the Royal Faculty of Physicians and Surgeons at Glasgow and was an early example of state medicine. By the charter of 1599, the faculty also supervised the dispensing of drugs and poisons, and along with the names of Lowe and Hamilton appeared the name of “William Spang, Apothecary.” Spang’s portrait hangs with those of Lowe and Hamilton in the Faculty Hall. In 1614, Gabriel Sydsenf, “pothecar,” was admitted as a member of the faculty, and for 2 centuries only the faculty granted licenses for the practice of pharmacy.

Until the latter part of the 17th century, the faculty appears to have not felt influential enough to extend its control beyond Glasgow, although it had been given control over medical practice for a wider area. The faculty had issues from time to time, especially with the barbers. For example, an issue with the barbers, who often practiced on Sundays and acted as “prophaners of the Sabbath,” was found by the faculty in 1676 to be “contrair to the word of God, and to all lawes both humane and divyne.” A resolution was passed that any member of the faculty convicted of “plying his craft” of barber on the Sabbath day should be fined 40 pounds Scots and, on refusal to pay the same, be ejected from the faculty. About this time, the faculty also seemed to have been very busy in the prosecution of unlicensed practitioners; town records are filled with cases of such persons being brought up for inquiry by the faculty. These individuals were either fined or forbidden under penalty to practice further. Lowe spoke out against all “quack doctors” as he called them because they “do their worke vnskillfully. . .like as cosoners, quack-salvers, charlitanes, witches, charmners, and divers other sorts of abusers” who “are permitted to use charmes, lyes, execrable oaths, mortiferous poyson, fallacious and vncertaine experiments, whereby they destroy both friend and foe, euer detracting the true professors of the Art.”⁶

Parentetically, the barbers were a necessity of the times, but they were considered inferior to surgeons and physicians. Renwick and Lindsay⁶ quote from Weir’s *Origin and Early History of the Faculty*:

In 1602, it was “statute and ordained” that barbers, being “a pendicle of Chirurgerie,” should be admitted at certain fees, but they were strictly enjoined not to meddle with anything beyond their own province, namely, the dressing of simple wounds, bleeding, tooth-drawing, and the like, these operations being performed under the supervision of a physician or surgeon.⁶

This position continued until 1703, when the barbers appealed to the town council and asked to be separated from the surgeons. In 1708, officials approved such a separation, and this division continued in Edinburgh until 1719.

In 1601, Lowe accompanied the Duke of Lennox, Lord Chamberlain of Scotland, who was appointed special ambassador for the Scottish King at the Court of France. In 1602, he returned to Glasgow. He had a daughter, Christine, with his first wife

Grizell Pollart. Some time before 1604, he married Helena, daughter of David Weymis (or Weems), the first Presbyterian minister of Glasgow after the Reformation, with whom he had a son, John, on December 20, 1612.¹ His son John was admitted as a member of the faculty in 1636, although it is doubtful whether he was ever a surgeon at all.¹ John Lowe was admitted out of respect for his father and “for the benefit of his children.” John Lowe’s son, James, was admitted in 1677 for the same reason as his brother, although he practiced as a lawyer in Edinburgh. Peter Lowe died either in 1612, the date on his tombstone, or between that date and June 30, 1617, as recorded in Paris.¹ One inscription on his tomb stated, “such a one who cured many while he lived.”²

CONCLUSION

Peter Lowe contributed to our surgical knowledge, including that of cranial surgery. It is the experiences and writings of such pioneers on which we build our current discipline of neurosurgery.

Disclosure

The authors have no personal financial or institutional interest in any of the drugs, materials, or devices described in this article.

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COMMENTS

This review of the life and contributions of a 16th (to 17th) century surgeon is informative and interesting. However, for the sake of discussion, I will contest the finality of its concluding sentence: “It is the experiences and writings of such pioneers on which we build our current discipline of neurosurgery.” This statement seems obvious enough, but interpreted literally, it ignores the critical importance of neurosurgery’s scientific base. Yes, of course, there was plenty of practical experience with head injuries and other cranial or spinal problems throughout recorded history.¹⁻³ But those experiences were largely within an empirical craft (surgery). Neurosurgery as a distinct and successful surgical discipline did not arise until it had a scientific base in anesthesia, asepsis, and especially cerebral localization. Admittedly, the discovery of anesthesia was empirical, but antisepsis was thought out by Lister as a direct consequence of Pasteur’s

discovery of microorganisms, and the story of cerebral localization (Broca, Jackson, Fritsch and Hitzig, Ferrier) is well established. I have further maintained that neurosurgery was not fully successful until Cushing was able to transfer his laboratory knowledge of intracranial pressure to the bedside and the operating room.^{4,5} Indeed, the tradition of vigorous scientific investigation to advance the specialty continues to this day.

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I congratulate the authors for informing us about one of our predecessors, Maister Peter Lowe. His contributions to surgical education and in establishing the Royal Faculty of Physicians and Surgeons have left a lasting legacy. It is interesting that the qualification and licensing of surgeons vs barbers is echoed in our modern issues with physicians and midlevel providers. From a technical standpoint, I am always struck with the sophistication of these early surgeons in anticipating treatments and disease processes well before the era of imaging. I particularly enjoyed Figure 3. I believe I saw some of those instruments on my last craniotomy!

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Peter Lowe was a prominent personality in surgery who, despite not really having a formal education, made a strong and successful contribution to a very early period of surgery. Lowe’s original surgical work is often credited by historians as being the first systematic surgical treatise published in the vernacular and the first to appear in English. The authors have nicely reviewed Lowe’s peripatetic background, leaving Scotland for Europe and then returning and outlining his surgical and social contributions. Although Lowe did not really offer anything new or extraordinary in his surgical writings he did show meticulous care in the management of head wounds and other injuries. Lowe followed the typical contemporary surgical doctrine by mirroring the Hippocratic schooling and dogma. When it came to trephining, whether for head injury or a brain lesion, it appears that he might have been a bit more adventurous than his other colleagues in his surgery. I was interested to read of his contributions to the regulations and formulization of the barber-surgeon society in Scotland. His portrait shows that Lowe clearly went from humble beginnings to becoming a friend and surgeon of the Royal Court and an aristocrat. The authors have done an excellent job of bring this 16th century surgical figure back to life for our readers, along with his contemporary surgical manual, a clear leader in this important developmental period in surgery.

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