



Lauralie Possenti

The evolution of surgery in 18th-19th centuries England : From Bottom to Top

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THE EVOLUTION OF SURGERY IN 18TH- 19TH CENTURIES ENGLAND

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*From Bottom to
Top*

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Introduction

Surgery is one of the oldest forms of medical treatment for which evidence has been found. In fact, surgery was born around half a million years ago, at the time when Java Man, called *Pithecanthropus erectus*, evolved on earth.¹ If it can be assumed that the earliest type of surgery was devoted to tending wounds, evidence of successful amputations and trepanations have also been found. For instance, the skeleton of a man living 45,000 years ago and who underwent an amputation of his right arm was discovered in Iraq, and evidence of trepanations have been found as far back as 4900 BC.² As such, it is not surprising that surgery has had a central role in health and healing throughout ages. Indeed, it has been noticed that the instinct of primitive tribes in general was to cover wounds with leaves and other parts of plants. This belief has lasted for a long time and a proof of its establishment can even be found hundreds of centuries later in William Shakespeare's work. For example, Shakespeare wrote in *A Midsummer Night's Dream* "I shall desire you of more acquaintance, Good Master Cobweb: If I cut my finger I shall make bold with you..." Shakespeare refers here to the old belief that spider-webs help to stop bleeding.³

As far as trepanation is concerned, archaeologists discovered the oldest trepanned skull in Alsace, France, but proofs of trepanation can be found all over Europe; in Denmark,

¹ Scientific name for Java men. As quoted in Haeger Knut, *The Illustrated History of Surgery* Revised and updated by Sir Roy Calne. Harold Starke publishers. 2000.

² Trepanation: a hole in the skull produced surgically. Merriam-Webster Online Dictionary. <https://www.merriam-webster.com/> and Haeger Knut (2000), p12

³ Shakespeare, William. *A Midsummer Night's Dream*, Act III, Scene 1

Spain, Italy and the British Isles.⁴ What is extraordinary is that most of the skeletons found proved to have survived to one or several trepanations during their lifetime, which means that holes made in the bone healed by allowing new tissues to grow.

Nowadays trepanation is, for instance, performed to relieve the pressure on the brain after a blow on the head or after a violent shock. Researchers like Haeger Knut and Paul Lecène argued that prehistoric men used trepanation to relieve the pain caused by migraines or sudden headaches that were caused by demons or evil spirits.⁵ Once the trepanation was done, the spirit could go and let the victim of a bad curse leave peacefully. Indeed, according to Paul Lecène, it is not relevant to interpret this operation as hygienic or therapeutic methods, for trepanation and other medical techniques had magical purposes at that time and this until the Antiquity and beyond.⁶

Hippocrates was the one whose ideas influenced a change in the perception of medicine. He was, with Galen and Asclepius, one of the greatest medical men of his time. Asclepius was first described as a doctor who managed to cure many soldiers' wounds in Homer's work, but he was soon considered to be the son of Apollo and the god of medicine and healing in ancient Greek mythology.⁷ He is even the one who gave his name to the symbol of medicine: the rod of Asclepius.⁸ This emblem consists of a snake coiled around a rod and is still in used today as the emblem of some medical professions such as pharmacists or surgeons. As far as Hippocrates is concerned, his thinking turned medicine from the magical domain to a more scientific one. Indeed, at this time, magic was part of all medical treatments, as can be shown in Homer's *Odysseus*: "Then the dear sons of Autolycus busied

⁴ Haeger Knut (2000) p12

⁵ Haeger Knut, (2000), chapter 1

⁶ Paul Lecène (1878-1929), a French teacher at the hospital St Louis in Paris.

http://data.bnf.fr/10403283/paul_lecene/ and D'Allaine Claude, *Histoire de la chirurgie*. Que Sais-je ? Presses Universitaires de France. 1967, pp10-11

⁷ Houtzager, Guus. *L'Univers de la mythologie grecque* (2004). Gründ, p 53

⁸ Cf. Annexe 2 and the Chronology

themselves with the carcass and the wound of noble, god-like Odysseus they bound up skilfully, and checked the black blood with a charm.”⁹ When reading this extract, it is made clear that magic was at the centre of healing methods, and this is against what Hippocrates fought during his lifetime.

Nevertheless, it is interesting to see that surgery, being the most practical branch of medical disciplines, was relegated to the bottom of medical hierarchy. Indeed, in *the Corpus Hippocraticum* made of seventy-two books, only six deal with surgical topics. The most complete is a treaty about joints, but Hippocrates also wrote treaties about fractures, wounds, haemorrhoids and fistula, and lastly a treatise about medical men and their duties. As a matter of fact, all these writings show that surgery was limited to external treatments whereas the physician dealt with internal disorders. Moreover, what is developed in these treaties is far from being innovative. This is not so much the theories he developed that made him the “father of medicine” but rather the scientific spirit he introduced in his work. This is very much present in his description of epilepsy, in which he recognized that this ailment was caused not by demons or curses but because of brain lesions. Yet, even if his influenced has marked the world of medicine, his view of surgeons and surgery was very telling. Indeed, he asserted that “what cannot be cured with medicament is cured by the knife”, which clearly shows what kind of treatment he preferred. Moreover, the Hippocratic Oath asserts that a doctor “will not cut out, even for the stone” but “will leave such procedures to the practitioners of that craft”, which highlights the low status of surgeons who were considered as doing a barbaric work.¹⁰

What’s more, Celsus also described how the ideal surgeon should be and declared that he “ought to be in early manhood, or at any rate not much older; have a swift and steady,

⁹ Homer, *Odysseus*. Book XIX, verses 455-456.

¹⁰ Hippocrates. *Hippocratic writings*, (translated by J. Chadwick and W.N. Mann).1978. Penguin Classics, p67

never-faltering hand, and no less skill in the left hand and the right, have a sharp and clear eyesight; appear undistressed...”¹¹ One can find similarities with Ambroise Paré’s description of surgeons’ concern, for “there are five duties in surgery: to remove what is superfluous, to restore what has been dislocated, to separate what has grown together, to reunite what has been divided and to redress the defects of nature.”¹²

As a matter of fact, surgery was regarded as a mere craft and not as a science, which explained the separation between physicians and doctors. This division was still topical in eighteenth century Britain, with physicians constituting the elite of the medical world and the barber-surgeons doing the dirty work. At the time, surgery was seen as very painful and dangerous, which explains why people would have called a surgeon only as a last resort. Many of them would even have preferred death instead of undergoing an excruciating pain through surgical procedures. Indeed, operations were bloody and had to be done as quickly as possible. As a matter of fact, the study of surgery throughout time offers dramatic evidence of the extraordinary changes which the medical treatment has undergone in the last centuries. This development is also a result of worldwide research in medical and social history. In fact, it can be asserted that medical tradition is based on the teaching of Hippocrates and another great doctor: Galen.

This latter worked for the spread of the theory of the Four Humours, developed by Polybos, who was Hippocrates’ son-in-law.¹³ This theory is based on the idea that the body is governed by four basic kinds of fluids: blood, phlegm (or mucus), yellow bile (or cholera), and black bile (or melancholia).¹⁴ If the four humours are in balance, the body is healthy. If not, that means you are sick. The thinking of these men was deeply embedded in the medical

¹¹ Haeger Knut, (2000), p51

¹² Haeger Knut, (2000), p9

¹³ Haeger Knut, (2000),p45

¹⁴ Cf Annexe 1

world until the late eighteenth century, even if medical men such as William Harvey and Ambroise Paré started a new way of thinking in the sixteen and seventeen centuries. We owe to William Harvey the discovery of blood circulation, which contradicts the ancient way of thinking in which the liver had a role to play. However, he could not dissect as much as needed, which restricted his work the same way it restricted the work of all those interested in surgery. Indeed, it quickly appears that surgery and the understanding of the human body were not possible without having a deep understanding of anatomy, physiology and the different pathologies. This can explain the stagnation of this craft. In fact, despite some major discoveries such as the one by Harvey, surgery had to wait several centuries before the study of that science was finally judged to be necessary and was eventually authorized by the Church and states.

As soon as the restrictions were eventually a bit relaxed, universities of medicine started to arise. The first one was built in Italy, then in France in Montpellier in 1220 and in Paris in 1280.¹⁵ Even then, surgery was considered as being inferior and barbaric, which led to a separation of the educated physicians and the trained surgeons who did not follow university training but an apprenticeship. As such, surgeons did not distinguish themselves from physicians before the sixteenth century and even then the split was not easy. Indeed, surgeons were expected to be completely submissive to the physicians who wanted to keep control of people's health without using the knife. Ambroise Paré is considered to be the first physician who chose to dedicate himself to surgery, but this did not change the fact that surgery was perceived as a manual craft and not as a science. This reality even lies in the etymology of the word. Indeed, the Latin "chirurgia" comes from the Greek words "cherios" and "ergon", which respectively mean "hand" and "work".

¹⁵ D'Allaine Claude, *Histoire de la chirurgie* (1967), pp29-30

Surgery stagnated until the sixteenth century. This is around this date that the knowledge and understanding of anatomy truly developed. However, it is only during the eighteenth and nineteenth centuries that surgery started to take off and open the path to major discoveries in that field. The question is to know how this medical domain became distinct from others. When studying the development of surgery in its entirety one can notice that it is very similar to other scientific fields, namely a scientific domain which suddenly evolved after a period of stagnation. Nevertheless, surgery is not what one may call a “pure science” and according to Claude d’Allaine, this particular domain can be perceived as being both art and science.¹⁶

Besides, the late eighteenth and nineteenth centuries were a time of tremendous change and innovation in science, social issues-regarding health care and the improvement of living conditions- and economy in the Western world. Surgery was no exception to these changes and evolutions. It is thus interesting to see how these craftsmen, who were first the mere assistants of the prestigious physicians, eventually became powerful medical men. Indeed, surgery rose in quality and slowly started to be more valued and significant in Europe and particularly in Great Britain and in France.

This memoire will consequently prove that it is interesting to see how these craftsmen, who were first the mere assistants of the prestigious physicians, eventually became powerful medical men. The period from the 1740s to the 1860s is particularly interesting to observe this evolution, for even if a renaissance in anatomy and in physiological knowledge could have been observed in the sixteenth and seventeenth centuries, the following two centuries had also been the theatre of medical evolution and it is between 1740 and 1860 that the status of surgeons and surgery truly began to change. This reflects the changes that

¹⁶ D’Allaines C. *Histoire de la Chirurgie* (1967)

occurred in British society and the numerous innovations of the time, despite a bad press from contemporary historians. Indeed, surgery rose in quality and slowly started to be more valued and significant in Europe and particularly in Great Britain and in France. Huge progress was made in anatomical knowledge and the Enlightenment eventually ended the medieval beliefs about humours and their balance and witnessed the creation of modern western medicine.

According to older perceptions of history of science, progress was made possible thanks to intellectual and technological advances. However, it appears- especially since Thomas Kuhn's work on the structure of scientific revolutions- that this point is more complicated than it first appears.¹⁷ This is in fact mainly due to ideas and perceptions that could differ depending on your status, your job and your place within society. Besides, these different perceptions were not necessarily scientific and were also spread by lay people in periodicals or novels. How did the perception of surgery influence and how was it influenced by technical advances and social changes? How does the evolution of surgeons' status change around this principle of perception? Indeed, the evolution of how surgeons and the practice of surgery were perceived by society is strongly linked to the evolution of surgeons' status during the late eighteenth and nineteenth centuries.

As a matter of fact, the evolution of certain occupations such as surgery was made possible thanks to the context of the time in British society. Indeed, if the 1720s were still strongly marked with the fear of plague and other diseases such as smallpox and influenza, which both had dramatic demographic consequences, this was about to change in the 1730s

¹⁷ Kuhn Thomas S. *The Structure of Scientific Revolution*. Chicago: The University of Chicago Press, 2012.

and 1740s.¹⁸ Britain was witness of a changing society and was also a powerful country which led the way to major improvements.

This memoire will not relate the history of medical discoveries of that time but will be an examination of the changes in thinking that led to the creation of modern medicine with the advent of surgery. As such, the main question will focus on the factors that led to the rise of surgeon's status and the exact role of surgery in the rise of modern medical thought. Indeed the evolution of certain occupations such as surgery was made possible thanks to the milieu of the time. Britain was witness to a changing society, that is to say a society which became stronger and stronger and gained better resources. Moreover, it was also a powerful country which led the way to major improvements in science and industry. Before the betterment was actually made, education was the cradle from which future surgeons, doctors, physicians and chemists would emerge to improve their knowledge in anatomy, chemistry, biology, physiology etc. It was also at this time that techniques to improve healing were implemented, which contributed to the merge of Physic and Surgery. This short summary gives the reader a background necessary for this work.

Surgeons' change in status was linked to several factors in the eighteenth and nineteenth centuries in Britain, and all of them are intrinsically linked. However, we can all the same bring out three main ideas that are Education, the Evolution in the way of thinking and medical advances.

At first, it may seem that the Enlightenment and the various changes in the way of thinking during the late eighteenth and nineteenth centuries were what led to changes in the education of surgeons and to major technical advances. Even if it is a valid way of understanding the evolutions of surgeons' status it is also restrictive. Indeed, the history of

¹⁸ Langford, Paul. *Eighteenth Century Britain: A Very Short Introduction*. 1984. New-York: Oxford University Press, pp. 18-19

the evolution of surgery does not rest on one broad factor but is linked to several factors that are themselves interlinked. This is why it is difficult to clearly divide all these aspects and analyse them without taking the others into account. In fact, the first two parts of this work will focus on the aspect described earlier, and the relationship between Education and the Enlightenment, Medical Reforms and Education or Medical Advances and Research will be highlighted. The point is to see that these subjects cannot be fully treated if the focus is only put on only one aspect of the subject. Indeed, it would lead to an incomplete, if not biased, understanding of the topic, and the main point of this memoir is to show that the causes of the evolution of surgery and its status are multiple.

As a matter of fact, several hypotheses can be suggested to explain this rise in status and the evolution of mentality. Among them is the influence of scientific development. Indeed, thanks to the evolution of education, surgery became more and more professionalized and all this led the way to major medical discoveries, inventions and innovations such as the stethoscope, forceps and more successful operating tools.¹⁹ The influence of all these factors will be the first approach of this work before analysing and highlighting the importance of social changes when studying the evolution of surgery. Yet, it is important to keep in mind that the change in the education of surgeons was influenced by broader changes linked to the Enlightenment. As such, not only medical reforms but also the influence of the Enlightenment had a significant effect on the evolution of the perception of surgeons and surgery and its improvement. However, the dark side of surgical practice with dissection and body snatching and the relationship between religion and science are also very telling aspects of the perception of surgeons and surgery and allows a deeper understanding of the rise of surgical practice and surgeons' status. The impact and influence of each will be analysed and

¹⁹ Cf. Annexe 3

we will see to what extent and why each of these propositions had an impact on the evolution of surgery and what were the consequences for the medical world.

I. Scientific development: From Butchers to Highly Respected Medical Men 1740s-1860s

If there is a medical trade that evolved greatly during the eighteenth and nineteenth centuries it is the surgeons'. In fact, the change of surgeons' status brought a different set of educational requirements. In England, there was a movement toward higher levels of formal education that played a significant role in the evolution of surgery. Besides, the separation of Barber-Surgeon in the middle of the 18th century and the creation of the Surgeon Company led to the creation of a strong trade guild at the end of the eighteenth century: the Royal College of Surgeons. Moreover, there was a rivalry involving apothecaries and other medical men who wanted a more regulated medical world and a more defined status. All this eventually led to the Apothecary Act in 1815 that introduced compulsory apprenticeship and formal qualifications for apothecaries. To compete with them, the Royal College of Surgeons established new and more stringent requirements for admission as a fellow. For instance, a written account of six clinical cases together with papers in anatomy, physiology, surgery, pathology and therapeutics and a possible oral examination as well as being required to perform dissections or operation on a cadaver were more and more frequently asked. With such requirements it is not surprising that surgeons' education gradually moved from a very technical training to university training.²⁰

²⁰ McGrew Robert. E. *Encyclopaedia of Medical History*. 1985. New-York: McGraw-Hill Book Company.

1. Evolution of Surgeons' Education:

a. University Training: The Scottish Enlightenment

Tremendous changes were happening in Scotland during the Enlightenment, and the Scots are known for their legacy in philosophical thought that led the way to major changes in the way of thinking during the eighteenth and nineteenth centuries. Indeed, the eighteenth century's medical authors pictured the battles of reason against superstition, of free inquiries against dogmatism, of experience against bigotry and narrow-minded book-learning. The British scientist William Harvey was the first one to represent the alliance of medicine and science by spreading the image of the heart as a pump when he discovered the functioning of blood circulation. His experiences were a proof of the happy marriage of medicine with the mechanical philosophy. Another leading figure can be found in John Hunter (1729-1793), a Scottish surgeon who demonstrated the Baconian union of the hand and the head, of manual and mental labour. By doing so, he allowed surgery to be ennobled into science, which was a huge progress at the time. As a matter of fact, medical thinkers reiterated key Enlightenment themes such as the glory of Antiquity, the enduring importance of freedom, patronage and public support to conjure up a medical past that underwrote the present and foretold a glorious future. Besides, health improvement was considered essential to human emancipation, ensuring freedom from suffering, want and fear.²¹ These new ways of understanding the human mind and body were very important to explain the changes occurring among scientific domains, and surgery was perhaps the field that evolved most at the time.

It is also interesting to highlight the fact that the creation of hospitals in the thirteenth century coincided with the creation of the first universities in Italy, Spain, France and

²¹ Porter Roy. *Flesh in the Age of Reason*. 2003 London: Penguin Press, pp. 323-333

England. In Scotland, the fifteenth century saw the arrival of universities as leading centres for learning. However, it is only later than they developed into centres for medical learning, and surgery started to be included among university training only during the late eighteenth century. What can also be emphasized is that the development of both hospitals and universities can be seen as direct consequences of the increasing wealth in Western Europe. Moreover, the growth of towns led to a greater demand for services of all kinds, and the wealth generated was put to a variety of new purposes, one of them being the education of physicians and later of surgeons.²²

By the middle of the 18th century, Scotland had established itself as a major centre of scientific and philosophical thought. Edinburgh University Medical School dates from the appointment in 1726 of the Leiden-trained surgeon and teacher Alexander Monro as professor of anatomy.²³ That same year, he gave a very famous and popular lecture about the Anatomy of the Human Bones.²⁴ By any standards, Edinburgh's medical development in the following century affords a stunning success story with a galaxy of different talented practitioners such as the Monroe family in anatomy, Joseph Black in chemistry and Henry Cullen and John Gregory in theoretical and practical medicine. Another famous Scottish medic was John Hunter, a leading obstetrician who attended Queen Charlotte, George III's wife, during her labour with less invasive technique than midwives.²⁵

Besides, Scottish development was strongly linked to French evolution of surgery. Indeed, in France, the tradition of training surgeons by apprenticeship came to an end in 1768, and after that, French surgeons started to compete with physicians for their status to be

²² L I Conrad, M Neve, V Nutton and R Porter, *The Western Medical Tradition, 800 BC – 1800 AD*. 1995. Cambridge: Cambridge University Press, p 153

²³ L I Conrad, M Neve, V Nutton and R Porter (1995), p 453

²⁴ Haeger Knut. *The Illustrated History of Surgery*. 2000, p169

²⁵ Porter Roy (2003), pp. 117-119

recognized as equal to them. They claimed that surgery was no mere manual art but genuine science. Moreover, the relocation of surgical education into the hospital reinforced the growing link between surgery and anatomy, which led to a new perception of disease, that is to say, the patho-anatomical perspective on diseases. With these developments, France led the way in surgery and trained and inspired many surgeons and surgeons-to-be. This was particularly the case with Scottish medical men such as Alexander Monro who, strikingly enough, was the first surgeon to be at the head of a medical institution. Thanks to the new combination of medical and surgical educations given in Scotland and later in England- often by Scottish surgeons- the old distinctions between the two professions began to blur.²⁶

However, Edinburgh's development was largely due to its collective identity and its operation in a university environment that was uncommonly user-friendly and responsive to demand. By the 1780s, when medicine was moribund at Oxford and Cambridge, Edinburgh University was attracting no less than two hundred medical students a year and this number doubled by the 1820s. In Scotland, students soon took the habit of walking the ward besides their university training, which accentuates the duality of the new approach of surgical education, namely both an intellectual and a practical training.

Moreover, the Edinburgh medical school's success and the new training of surgeons owed much to their link with the town infirmary.²⁷ Indeed, Professor John Rutherford (1695-1779) inaugurated clinical lecturing in the 1740s, and from 1750 a special clinical ward was set up, whose patients served as teaching material during clinical lectures. In the 1770s, patients were selected, disposed in separate rooms in the Infirmary, and attended by one of the college professors. The students then went round with their teacher every day and marked down the state of each patient and the medicines prescribed. At certain times, lectures were

²⁶ Porter Roy (2003), p 121

²⁷ Porter Roy (2003), p 138

read upon these cases, in which all the progressive changes in the diseases were traced and explained, and the method of practice were accounted for. Students were expected to visit patients' bedsides for themselves, studying the professors' report. This practice first established in Scotland spread in the neighbouring countries and became normal throughout Europe.²⁸

b. The Rise of Hospitals during the 18th- 19th centuries

“Today’s hospital is to medicine as the cathedral to religions and the palace to monarchy.”²⁹ In fact, it is nowadays the place where medicine is the most complex, advanced, specialized and innovative. Yet, the medical world had worked without hospitals for a very long time and people were often sceptical about the use and value of such institutions. In fact, there were no medical hospitals at all beyond London in Britain as late as 1700, even though they had started to emerge with the Christian era. Britain was late compared to other countries in Europe where many hospitals were built to shelter and care for the poor. New hospitals were founded in order to fill that gap in the eighteenth century. It is interesting to note that the Crown and Parliament played no part, which means that Health was not considered as a major public issues as late as the end of the eighteenth century. In fact, funds came from the charitable impulses and soon five general hospitals were founded in addition to the St Bartholomew’s and St Thomas’s: the Westminster (1720), Guy’s (1724), St George’s (1733), the London (1740) and the Middlesex (1745). Thanks to these developments, London’s hospitals were welcoming over 20,000 patients a year by 1800.³⁰ However, hospitals were far from being seen as safe place of treatments and convalescences. In fact, people at the time considered them as “gateways to death” because of the spread of

²⁸ Conrad L. I, Neve M, Nutton V. et al. *The Western Medical Tradition 800 BC to AD 1800*. 1995. Cambridge: Cambridge University Press, p457-458

²⁹ Porter Roy. *Blood and guts: A Short History of Medicine*. 2003. W.W. Norton & Company, p 135.

³⁰ Porter Roy (2003), pp. 149-140

infections and the high mortality rate.³¹ Indeed, many observed that hospitals did more harm than good and debates raged as to how hospitals could be made safer through better sitting, ventilation or sanitation for instance. In fact, the eighteenth century was the theatre of campaigns for hospital reforms and the accent was put on the need for cleanliness and fresh air.

Besides, even if the reputation of hospitals were still strongly marked with fear and death during the 18th and 19th centuries, this perception was slowly evolving. Indeed, hospitals started to lose their secondary role to become more central in the world of medicine. Later, these types of institutions developed in provinces. Another important thing is that hospitals were charity-related and destined only for poor and this remained the case until the twentieth century. It is interesting to see why hospital posts were so attractive to medical men in the eighteenth and nineteenth centuries and how hospitals were a way to improve surgeons' status and also made possible many improvements in medicine.

First of all, hospitals were becoming more and more important in the medical world and even more specifically for surgeons. Indeed, having an appointment in a hospital was a way to significantly improve your status as a medical man. Despite the fact that the medical world was still chaotically organized and doctors often seen as being at the service of patients, the eighteenth century saw a great improvement in the role assigned to medical professionals in European society. The deterioration of health conditions due to population growth and urbanization brought about the birth of voluntary hospital movement or of 'associated philanthropy'.³² In other words, these hospitals were based on the charity of donors, and doctors gave their services free to the hospital as an act of public generosity. This charitable endeavour was a way to improve the doctor's status, showing him as a man with

³¹ Porter Roy (2003), p 142

³² Quoted in G.B. Risse, *Mending Bodies, Saving Souls* (New York 1999, Oxford University Press) p238

civic and humanitarian concerns, but it was also a way for surgeons to have access to a wide range of diseases thanks to the great number of patients. Indeed, along with reforms of the time, hospitals' doors were more and more opened to medical students. Moreover, professors, who had access to clinical beds, came to use instructive cases as teaching material. Around 1800, perception of hospitals started to move from a site of charity, care and convalescence to a predominant medical powerhouse thanks to the development of new medical approaches based on physical examination, pathological anatomy and statistics. Besides, post-mortems- used to correlate pathology in the living with internal manifestations after death- were conducted and the identification of diseases as independent entities was more and more elaborated. It was also a way to establish representative disease profiles thanks to statistics. More than the classification of disease and patients, hospitals became the place where diseases could be displayed to students on what quickly became standard ward round. The patients, being charity cases, had no word in this process. Besides, hospitals' morgues were perfect for the training of students and to conduct research.³³

Eventually, the rise of collective and individual statuses was linked to the hospitals' dominion. Indeed, doctors- and more specifically surgeons- had more and more power, not only in the running of the hospital but also over their patients. Indeed, doctors gradually had less reliance on the patient's description of his symptoms and more importance was placed on the medical man's evaluation of the physical signs of disease he could eventually observe.³⁴ Consequently, authority slowly shifted from the patient to the doctor. At the same time, medical men progressively took more initiatives in day-to-day running of the hospital, and in the 19th century the large numbers of poor patients suffering from similar conditions encouraged major new advances in medical theory and practice.

³³ Porter Roy (2003), pp. 142-145

³⁴ As described in M.J. Peterson, *The Medical Profession in Mid-Victorian London*. 1978. London, p14-15 and in Roy Porter *Disease, medicine and Society 1550-1860*. 1995. Cambridge University Press, p34-35

Finally, the fact that being appointed to a hospital post was a real honour is another evidence of the beneficial consequences of hospitals on a medical man's status. Actually, you were seen as a successful doctor if you were appointed to a hospital. More than that, part of the professional élite in the 1840s- 1850s was bound with having a post of physician or surgeon in a hospital. What is also interesting to note is that appointment came early in a career or not at all, and if being appointed to a hospital was an expectation of almost any physicians and surgeons in the Enlightenment London, it was to be a true mark of recognition in Victorian England. Thus, a new distinction settled within the medical hierarchy: 'Consultants' appointed to hospital posts as opposed to others.

Another advantage of practising medicine within hospitals was of the pecuniary kind. Despite the fact that medical professionals-with the exception of apothecaries-were not paid, hospitals or dispensaries could prove to be very lucrative because not only were these posts a way to gain experience but they were also essential to create connections with potential prestigious patients who could help establish a private consulting practice. Besides, medical men and more particularly surgeons took apprentices who would have the privilege to become their assistants, were allowed to walk the ward and learn their craft. This ideal apprenticeship would occur in exchange for higher fees.³⁵ After 1750, in London, potential future doctors would pay fees to attend lectures on diversified subjects such as anatomy, pharmacy, surgery and practical medicine. This was a very fashionable way for medical professionals to earn money, but other alternatives existed for those who failed to be part of the hospital life. This one is the creation of specialist hospitals such as the Lock Hospital in 1746, which cured venereal diseases and the Lying-In Charity for Married Women, dedicated to child birth. Specialisations also helped doctors to gain experience and knowledge in one

³⁵ Described in M .J. Peterson, *The Medical Profession in Mid-Victorian London*. 1978. London 1978, p16 and in Roy Porter *Disease, medicine and Society 1550-1860*. 1995. Cambridge University Press, p 33-34

particular area of medicine, and newly founded hospitals could be an efficient mean to become wealthy. Dispensaries were also lucrative, for they cost less money than hospitals and welcomed more patients. They were thus seen as offering more cost-effective way of 'spending pious money'.³⁶

Finally, improvements in medical research were made possible by the development of the hospitals, and even if 18th-century medical men saw posts in hospitals as means to gain professional success in their private practice, hospitals were also seen as 'house of teaching and research'.³⁷

If English universities did nothing to improve medical education in the 18th century, voluntary hospitals did. Indeed, the latter contributed a lot to the understanding of health and diseases. Surgeons in particular took advantage in the possibility hospitals offered to their science and began to make more and more dissections. Soon, hospitals were seen as "House of dissection", for physicians systematically dissected all the patients who died in their institutions. This led to a fast development of pathological anatomy, clinic-pathological correlations and led to an improvement of physical examination techniques. This is particularly true in Paris, the reputation of which was well established in Great Britain.³⁸ In the sixteenth and seventeenth centuries, students in medicine could have the opportunity to do dissections and by the mid 1720's dissections were regularly performed by surgical students at the Charité and at the Hôtel-Dieu, two major hospitals in Paris. Many English and Scottish students in medicine took advantage of the French teaching and came back in England to exercise and teach their science in British hospitals. Medical posts were thus very attractive

³⁶ W. F. Bynum and Roy Porter, *William Hunter and the eighteenth-century medical world*. 1985. Cambridge University Press, pp.108-109 and in Donna Andrew, *Two Medical Charities in Eighteenth-Century London: The Lock Hospital and the Lying-in Charity for Married Women*, in Jonathan Barry and Colin Jones (eds), *Medicine and Charity before the Welfare State*, pp. 82-97

³⁷ G. B. Risse, *Mending Bodies, Saving Souls*. 1999. New York Oxford University Press, pp.231-256

³⁸ Toby Gelfand, "The "Paris Manner" of dissection: student anatomical dissection in early eighteenth-century in Paris", *Bulletin of Medicine* 46, 1972

because a large group of patients -who didn't pay, and were consequently more passive - allowed them to carry on research. Real experience could be gained and improvement could be made. Moreover, more and more surgical operations were practiced thanks to the introduction of general anaesthesia and from the 1880s, the construction of well-equipped and sterile operating theatres in which advanced antiseptic surgery was performed really helped to turn the hospital from a refuge for the indigent into a machine for curing. At the top of the hospitals, surgeons were now the leaders.

2. The Professionalization of Surgery:

a. Teaching: The Rise of Edinburgh and London as Leading Centres and the Influence of the French Methods.

The eighteenth century saw universities blossom. In fact, there were major medical developments in Paris and soon, the way of teaching French students was copied by British surgeons and teachers.

Because the place of surgery in university was recent, the whole process of training new surgeons was yet to be built up. It is true, though, that the teachers of surgery were inspired by previous medical teaching among universities. However, new subjects were introduced with the advent of anatomy, pathology and physiology on one hand, and a new way of teaching with the development and restructuring of universities, hospitals and private schools on the other hand.

First of all, it is really interesting to see that major changes in the structure and functioning of a country had a major impact on the perception of medicine-and more specifically of surgery. To highlight this point, the example of France and its influence over British medical teaching and research is really striking. It is indeed interesting to see how

Paris medicine disseminated its teaching-first in France and then worldwide, with a specific influence on the Anglo-Saxon world.

In fact, events in France following the Revolution provided conditions for major transformations within medical thought and practice, and the forms of medicine that developed from these circumstances were to have a global impact. After the Revolution, most aspects of French society started to change, and this was also true with the medical world. Indeed, established medical institutions, such as the faculty of medicine in Paris, were viewed with suspicion by the revolutionaries because of their connections with the late monarchy. This led to a dismantling of the existing mechanisms of medical education.³⁹

At first, a free market for the provision of medical services was encouraged, and this idea of a free medical market place was soon developed in Britain, with practitioners at the service of patients in an open market place. However, even if the revolutionaries were ill-disposed to keep the urban hospitals, successive French governments were forced to reconsider medical teaching, partly because of pressing practical demands. Indeed, France was constantly in war between 1793 and 1814, which means that the state was in constant demand for skilled surgeons to serve in the armed services. This is why institutions to train these medical men were needed. Moreover, there was a rising awareness that each citizen had the right to have access to health and adapted medical treatment, which was also a factor in the development of hospital and medical schools.⁴⁰

As a consequence to these changes, a process of reconstruction and re-thinking of hospitals began in 1794, with the creation of three schools of health in Paris, Strasbourg and Montpellier. These schools had the particularity to accept students from every background.

³⁹ Brunton Deborah (Ed). *Medicine Transformed: Health, Disease and Society in Europe 1800-1930*. 2004. Manchester: Manchester University Press, p 9.

⁴⁰ Brunton Deborah (Ed) (2004), p.p. 9-10.

The new system of medical training was to be strictly practical and empirical in its orientation, abolishing the sterile scholasticism taught by the ancient regime. In fact, before the Revolution, students were taught medicine only through lectures and books- whereas after, education was in favour of observation at the bedside and dissection. These strategies were soon adopted at the Bristol Infirmary in South-England. It can also be argued that these changes really emphasize the fact that medical reformers of the 1790s showed a clear debt to the ideology of the Enlightenment. One of them, Antoine Fourcroy, summed up this idea when he declared “reading little, seeing and doing much, this will be the basis of the new teaching.”⁴¹

Another telling change that influenced not only the French medical world but soon its British counterpart was that there were no more difference between the teaching of surgery and medicine. Besides, hospitals became a place in which the poor were at the disposal of surgeons for them to gain experience not only by studying and treating their disease, but also thanks to the numerous dissections of the poor’s corpses. In France, poor people had no power left once they entered the hospital, which was different in England. Indeed, the family could accept or not that a member of their family was dissected by surgeons at the hospital.

Another difference between Britain and France is that, even though Britain was largely influenced by French medical education, British surgeons started to look for treatments when French surgeons stopped at the diagnosis, letting nature the capacity of healing the sick. However, during the eighteenth century, English university and surgeons’ education were moribund, and Scotland proved to be the new leading centre. In fact, Scotland was largely influenced by France at the end of the eighteenth century.

⁴¹ As quoted in Brunton Deborah (Ed) (2004), p 11.

The rise of Edinburg derived from collective rather than individual circumstances. Indeed, its success laid in the handiness of Scotland to be a tuition centre for English-speaking students.⁴² Above all, the education of surgeons operated on what we may call a supermarket system, which means that students attended only the lecture courses they desired, and paid for those alone. This method was also a way to motivate teachers to give their best while preparing and giving their lectures.

In the eighteenth century however, surgeons-to-be did not get an intensive bedside training and this despite the fact that Edinburg pioneered infirmary-based teaching. This latter was in fact not highly demanded, and most of the time, students had to take the road south to London to get their training on cadavers. In fact, the strength of an Edinburg education laid in inculcating anatomy, surgery, chemistry, medical theory and practice with clarity. It is in England that a complementary education was developed with two other modes of medical instruction: the private anatomy school and private lectures. The two served the needs of paying students eager to learn and acquire rapidly and cheaply a practical medical training. As such, it is thanks to the teaching of surgeons just like the English man William Cheselden or the Scots Hunter brothers that both Edinburg and London, following the example of France, became leading centres in medical teaching and research, which influenced considerably the status of surgeons at the time. Indeed, surgeons gained more and more power in the management of the everyday-health of patients and had more materials to study various cases and their variation, which helped them to acquire enough knowledge to become more reliable and more trusted.

⁴² Conrad L.I, Neve M. Nutton V. et al. *The Western Medical Tradition 800 BC to AD 1800*. 1995. Cambridge: Cambridge University Press, p 455.

b. Specializations of Surgical Domains: Surgery as a Specialization of Medicine and the Specialization of Surgery.

A handful of surgeons were able to make their living from surgery alone and most mid-nineteenth century surgeons engaged in general medical practice. At first, it was true that general surgery dominated, mostly because specialized medical men were too close to quacks and other illegal practitioners to be taken seriously, but specialisation in surgery soon became necessary. As such the specialisation of surgery can be understood through two different points of view, depending on the period of time studied. In fact, during the eighteenth century, surgery started to develop as a medical specialty. It is only later, and once its status as a medical field was widely approved, that several specialties started to rise within surgical matter. This is also linked to a change in the understanding of tissues and disease. Indeed, even if it is true that surgery was restricted to a small range of operations, the limitation of surgical techniques was not the only phenomenon that prevented surgical development.

More significantly, it is worth highlighting the fact that the curing of diseases by surgery did not make sense within the concepts of the body at the time. Actually, the idea that surgeons could simply open up a patient's body and alter its inner structure would have appeared an absurd and bizarre idea at the time. In fact, people strongly believed that diseases were caused by unbalanced humours that resulted from the sick person's environment or way of life. As such, diseases could be treated by changing the environment or lifestyle or by restoring the humours' balance through purging or bloodletting. On the contrary, modern surgeons see the body as a composite of different organs and tissues with particular functions. Thus, a disease can affect one of the tissues or organs, and surgery can cure these problems, either by removing the diseased structures or by restoring its function. It is in a context when

the way of thinking gradually shifted from one point of view to the other that the specialization of surgery- and within surgery- took place.⁴³

During the eighteenth century, surgeons gained in economic and political power, a fact that can explain their rise in status. This is also a consequence of the radical change in surgical training that occurred at the time. Indeed, being an apprentice or a barber-surgeon was not enough anymore, and after the Surgeon split from the barbers in 1745 in England, apprenticeship was supplemented and eventually replaced by formal training at hospitals, universities, public lectures and private anatomy schools. As a result, surgeons' education increasingly resembled that of physicians with an emphasis on lectures and book-based learning. However, unlike physicians, their training was also based on experience and dissections.

Surgery consequently became a profession in itself. Indeed, this new pattern of training led to a new way of seeing surgery- the same way the change of the perception of surgery led to a more specialized training. Before the eighteenth century, surgical education rested on a private arrangement between a teacher and his pupil. The master then taught his apprentice everything he knew. This way of teaching is a striking contrast with the development of surgical schools. With this new way of teaching, the content as well as the form of education became a matter of collective consensus. To be more precise, a common education presupposes two things. First of all, it was necessary to have a sufficient professional coherence and organization to standardize that knowledge and present it to the whole group of students. This standardisation made surgery not only a new profession, but a new possible specialisation for medical students. In fact, many physicians also studied surgery, and surgeons were more and more considered as being equal to physicians. Besides,

⁴³ Brunton Deborah (Ed) *Medicine Transformed: Health, Disease and Society in Europe 1800-1930*. 2004. Manchester: Manchester University Press, pp. 68-69.

it is also interesting to note that the development of surgical specialisation such as obstetrics, cardiology and later neurology soon followed.

Civilian surgery was performed by barbers in the early eighteenth century, but already some itinerants- the quacks- started specialising in one particular operation. They chose to become either travelling tooth-drawers, oculists who would couch for cataract, lithotomists who removed bladder stones and so called “hernia masters” who fitted trusses.⁴⁴ However, even if the surgeons chose to specialize in one specific disease, the operations undertook remained minor surgery- with major risks for the patient.⁴⁵

Major developments took place within the field of obstetrics. Delivering children had long been the privilege of women and men were most often unwelcome in many places- if not forbidden to be present at the event. This point can be highlighted by the story of a doctor in Hamburg who was fascinated by obstetrics. He decided to put on female dress and managed to witness several deliveries before he was exposed and promptly burnt at the stake.⁴⁶ However, a small group of physicians were soon allowed to attend difficult labours, even if most of them were usually too proud to deal with what was regarded at the time as filthy and unqualified labour. This lack of interest in obstetrics can explain why surgeons became the ones to be the more involved in this field, and the late eighteenth century saw the apparition of the so called man-midwife or accoucheur. As physicians not even considered this field of medicine of significance- because it was a female job- surgeons were called in case of difficult labours. As a matter of fact, surgeons soon started to be interested in the subject and quickly claimed superior skills than midwives. Indeed, their anatomical expertise made them confident that they could perfectly leave normal deliveries to Nature, while

⁴⁴ “A truss is an appliance designed to prevent the return of a reduced hernia or the increase in size of a hernia; it consists of a pad attached to a belt and kept in place by a spring or straps.” As defined in the medical dictionary <https://medical-dictionary.thefreedictionary.com/trussers>

⁴⁵ Porter, Roy. *Blood and guts: A Short History of Medicine*. 2003. W.W. Norton & Company, p 112.

⁴⁶ Haeger, Knut. *The Illustrated History of Surgery*. 2000, p 137

concentrating on emergencies. For instance, William Hunter was the one assisting Queen Charlotte during her labour. Hunter prided himself on being less interventionist than the midwives he displaced. However, the surgeons-accoucheurs, unlike the midwives, possessed surgical instruments, such as forceps, that were used in difficult labours and emergencies. They were introduced during the seventeenth century and were initially kept secret by their inventors, the Chamberlain family. Their model differed only in details from what we use today, and soon forceps became familiar and commonly used in obstetrics. This new specialty of surgical art developed to become a major subject of interests for surgeons eager to learn more about the science of giving life.

It is true that there was abundant evidence that the critical importance of the heart was appreciated during prehistory and ancient times; its true function was first defined by William Harvey, a British physician. The inspiration for his seminal discovery, considered by historians as being one of the greatest scientific triumphs of the Renaissance, came from the school of great anatomists of the University of Padua, where Harvey studied medicine. In his earth-shaking publication in 1628, *De Motu Cordis*, Harvey stated: “It has been shown by reason and experiment that by the beat of the ventricles blood flows through the lungs and it is pumped to the whole body. There it passes through pores in the flesh into the veins through which it returns from the periphery...finally coming to the vena cava and right auricle...It must then be concluded that the blood in the animal body moves around in a circle continuously, and that the action or function of the heart is to accomplish this by pumping. This is the only reason for the motion and beat of the heart”.⁴⁷

⁴⁷ Harvey W. (1847) *Exercitatio anatomica de motu cordis et sanguinis in animalibus* (An anatomical disquisition on the motion of the heart and blood in animals) 1628. Barnes, London. Translated by Robert Willis. Surrey, England. [Google Scholar](#)

However, surgical procedures involving the heart were too dangerous for surgeons to try to cure patient suffering from cardiac issues. They were studying the functioning of the heart only through diverse dissections and tried to improve the patient's cardiac health with treatments that did not involve surgery. What really changed in this field was diagnosis, and this, partly thanks to the invention of the stethoscope by Laennec. Indeed, it was believed for a long time that the heart was a place for doctors and medicine, but not for surgeons and their tools. This feeling remained until the 1890s, when wounds of the heart were first treated by a handful of brave surgeons. In 1891, Henry Dalton had to suture a tear in the pericardium to stop the patient bleeding to death.⁴⁸ It certainly was a great new accomplishment, yet surgeons still strongly believed that they should not perform surgery on the heart. In 1895, Alex Cappelen managed to suture a wound in the heart but the patient eventually died two years later. However, it was this surgery that gave other some hope for future heart operations. It was in Frankfurt in 1897 that the first successful heart operation was performed. The field of cardiac surgery then sustained an extraordinary growth, resulting in some of the major medical accomplishments of the twentieth century.

Yet, in the nineteenth century, surgeons still believed that, even if suturing open wounds was possible, operations of the heart to fix natural defects and diseases remained impossible. Another thing observed at that time was heart massage. Indeed, massaging the heart was observed to be useful from the late nineteenth century by a number of different surgeons. Surgeons found that a heart that had stopped beating could be induced into working again by opening the body and squeezing the heart rhythmically. However, although this strategy was widely accepted, applying pressure on the chest directly above the heart was relatively unheard of despite its documentation of success by Franz Koerig in 1883.⁴⁹ To

⁴⁸The fibroserous sac enclosing the heart and the roots of the great vessels, composed of external (fibrous) and internal (serous) layers. <https://medical-dictionary.thefreedictionary.com/pericardium>

⁴⁹ As described in a website dealing about surgery <https://bhatmanjim.weebly.com/the-impossible.html>

conclude, it can be said that the success of heart surgery relied not only on ideas from a few surgeons, but also on the discoveries and collaborations made around the world. Without competitions and a strong desire to master new techniques, the specialization of heart surgery would certainly not have reached the great status and mastering of our days.

Finally, it can be argued that the specialization of surgery, first as a specific medical field and then among surgery itself, demonstrates the evolution of surgery's status. Indeed, the development of surgical techniques shows that surgery took advantage of some area of studies neglected by the powerful physicians. In fact, it is partly thanks to physicians' carelessness that surgeons' rose in status during the late eighteenth and nineteenth centuries.

3. Medical Discoveries

a. Technical Advances: Anaesthesia, Sepsis and Technical Inventions of the late 18th-19th centuries.

“Concern for man himself and his fate must always form the chief interest of all technical endeavours”⁵⁰

Even if it is true that surgery is as old as civilization itself, with operations such as trepanation or bone setting being performed, surgery started to improve rapidly with the advent of anaesthesia and sepsis. However, it would be simplistic to argue that surgery was at a standstill before such innovations. Indeed, even if it is true that the power of surgeons was limited because of the pain inflicted to the patients and because of the risk taken during most operations, many discoveries were made and there were a true Renaissance in Anatomy during the fifteenth and sixteenth centuries.

⁵⁰ Albert Einstein, speech at California Institute of Technology, 1931

Besides, the word technology-which derived from the Greek word for craft- refers to the tools that are in the service of an intellectual enterprise. Social and conceptual factors both influence the invention of new technologies and technological advances such as Laennec's invention of the stethoscope depend on changing concepts and social factors, but also on prior technologies such as percussion. Once established, technologies not only change the practice of medicine, but also contribute to a change in the perception of illnesses, patients, doctors and diseases. Moreover, discoveries often seem to have taken place in a moment of lucky inspiration, but it is not that simple. Usually, they have a long prehistory during which the needs of people- and more particularly of scientific men- of the time are defined. This is true for the stethoscope but also for anaesthesia and antiseptics. Indeed, before the late nineteenth century, pain and infections were major obstacles to the development of surgery, which led surgeons to find a way to reduce pain and improve their surgical technique.

First of all, it is interesting to see that there are several conditions that favour scientific discoveries, among them are changes in ideas about the body, but also factors from a changing society, politics, economics, culture and philosophy. In this sense, a discovery “does not explode on a scene so much as it emerges from a milieu.”⁵¹ The discovery of auscultation and the invention of the stethoscope by René Laennec as much as anaesthesia and antiseptics illustrate these principles well.

“I have tried to place the internal organic lesions on the same plane as the surgical diseases with respect to diagnosis.”⁵² In fact, Laennec's invention was based on a desire to associate anatomical with physiological observations in the diagnosis of diseases. In 1816, the surgeon was working in the Necker hospital in Paris. According to his own account, he

⁵¹ Duffin Jacalyn . *History of Medicine: A scandalously short introduction*.1999. Canada: University of Toronto Press, p192.

⁵² Laennec, *Traité* (1826), 1: xxv. As quoted in Duffin Jacalyn (1999).

was examining a young woman who he suspected of having a heart issue, but percussion proved to be unhelpful because of her stoutness. Realising that, he thought of placing his ear directly on her chest to learn more about her heart but decorum prevented him from doing so. This is how he had the idea to use a paper rolled into a cylinder. He then placed one end on her chest and the other to his ear and he was astonished to hear the beating of her heart.⁵³ His new instrument allowed him to listen at a discreet distance that satisfied both modesty and hygiene. Laennec decided to name his invention “stethoscope” (from the Greek words for “chest” and “to explore”) and by doing so, put a name on a new way of diagnosing disease.⁵⁴ In fact, the stethoscope was the first diagnostic instrument to achieve rapid popularity, with the translation of Laennec’s description of most of the normal and abnormal breath sounds still in use today. Indeed, his book *De l’auscultation médiate* (On mediate auscultation) was written by February 1819 and translated into English by 1821.⁵⁵ The nineteenth century was also a time when old instruments were redesigned and new ones invented. Among these were, for instance, the first illuminated endoscope in 1807, the laryngoscope in 1829, the ophthalmoscope in 1851 and the bronchoscope in 1897.

As far as anaesthesia is concerned, the process was adopted after a long prehistory in the late 1840s. First promoted by dentists, it was rapidly adopted by surgeons who saw in it a way to erase suffering and make operations easier. Indeed, alcohol, opium and excessive bleeding had been used for centuries to relieve pain during surgical procedures. However, these methods were not effective and were often dangerous, if not lethal. In fact, the best relief for the patient undergoing an operation was rapid loss of consciousness, either caused

⁵³ Cf. Annexe 3

⁵⁴ Duffin Jacalyn (1999), pp195-199.

⁵⁵ Duffin Jacalyn (1999), p 196.

by the analgesia, the heavy bleeding or the pain produced by the procedure itself. This can perfectly explain why surgeons at the time strove for accuracy and speed.

Chemists were the first to discover special properties of certain gas, such as nitrous-oxide- also known as “laughing gas.” Nitrous-oxide was first introduced in the late eighteenth century, initially during social gatherings- because it produced rapid nonsensical inebriation- and then in operating theatres. It was in 1799 that the English chemist Humphrey Davy experienced a combination of nitrous oxide and oxygen on both animals and humans, suggesting that it might make surgical procedures less painful. This gas was also used by the dentist Horace Wells in 1844. He conducted a public demonstration of “painless tooth-extraction” but a patient resistant to the effect of this anaesthetic made him lose his credibility and he was mocked by his audience. His partner, W. T. Morton used ether with better results, which increased Wells’ failure and led him to commit suicide. As far as Morton is concerned, he used ether as a general anaesthetic for tooth extraction on several occasions. Then, it was on the 16 October 1846, at the Massachusetts General Hospital in Boston that he administered ether to Gilbert Abbot, while the surgeon John Collin Warren removed a tumour from the neck of the young man.

Chloroform was introduced into surgical practice in 1847 by the Scotsman James Young Simpson, who recommended its use in obstetrics. There was a strong controversy provoked by the Church around all forms of anaesthesia in the late 1840s. Indeed, it was said that men had to endure the suffering God sent to them. This was particularly the case with child-delivery, for the Bible stipulates that women had to deliver babies in pain.⁵⁶ However, mentalities changed when Queen Victoria delivered her baby under ether and soon the practice became fashionable. Yet, the danger of explosions because of gas contributed to the

⁵⁶ “I will magnify your pains in childbearing very severe; with painful labour you will give birth to children” Genesis 3:16. A woman’s pain in childbirth is part of the suffering brought into the world through sin.

debate. However, anaesthesia eventually became accepted, which allowed surgeons to do longer and more complex operations. They consequently started to think of opening the sanctuaries of thorax and abdomen. Yet, the problem of infection remained, and for a long time medical men had no idea how it was propagated from one patient to the other or from the doctor to the patient. There were no specific rules of hygiene and the image of the surgeon at the time was one dressed elegantly with his hair, moustache and beard blowing in the breeze and his hands bare and not always clean. This is why antisepsis and asepsis were two key discoveries in the history of surgery.⁵⁷

In 1867 the Scottish surgeon Joseph Lister (1827-1912) announced the results of one of his experiment with carbolic acid in open fractures. His method was based on the theory of the French chemist Louis Pasteur and both scientists stated that wound infections were caused by bacteria. He was the one who first gave lectures on “hospital gangrene”, namely the infections that prevailed in hospitals at the time. Yet, the explanation in the nineteenth century was that wound infections were caused because of a chemical reaction of the wound in contact with the oxygen in the air. The remedy was to bandage the wound tightly, which by no means solved the problem, for bandages kept the wound warm enough for it to develop infections. After many observations on infections and gangrene, Lister noted that micro-organisms were the problem. The only question was how to kill them. Pasteur had pointed out three ways: to filter them out, to heat them up or to expose them to chemical solutions.⁵⁸ The first two methods being impossible for living tissues, Lister used a carbolic acid to clean wounds. This is how the great surgeon launched the world’s first real antiseptic treatment. His first report was published in *The Lancet* in 1867, which is now regarded as the date of birth of antisepsis. He gave clearer statistics a few years later and numbers showed that the

⁵⁷ Duffin, Jacalyn (1999), pp. 225-229

⁵⁸ Haeger, Knut. *The Illustrated History of Surgery*. 2000. Revised and updated by Sir Roy Calne. Harold Starke publishers, p 210

death rate after amputations had sunk from 46% to 15%. In fact, the advent of anaesthesia and antisepsis brought a period of tremendous surgical innovations during the nineteenth century and beyond.⁵⁹

b. The Role of War: Military Medicine after Ambroise Paré's Legacy (16th century)

“He who wishes to be a surgeon should go to war”⁶⁰

It is certain that medical services have been associated with the military since the days of Ancient Greece. Yet, if the battlefield was at the origin of discoveries of new surgical techniques as much as the improvement of surgical procedures, it also had its limits. Indeed, for centuries, every army had lost far more soldiers in camps because of appalling sanitary conditions than on the battlefield. For instance, during the Crimean War (1853-56), 16,000 British soldiers died of sickness and only 2,600 were killed in the battlefields.⁶¹ Yet, it is the Crimean War that influenced the development of professional nursing with Florence Nightingale, and of the transportation of patients. Also, tremendous efforts were made to improve the care of wounded soldiers. Sir John Pringle (1702-82), a Leiden-trained Scotsman, was physician general of the English army from 1742 to 1758.⁶² He is known for having developed the idea of neutrality of the military hospital. At the battle of Dettingen in 1743, he was the one who proposed to the French that hospitals on each side should be protected from any attack.⁶³

⁵⁹ Haeger, Knut (2000), p 212

⁶⁰ Hippocrates, as quoted in Porter, Roy, *Blood and Guts* (2003), p 109.

⁶¹ Science museum.org.uk, read on the 23/03/18

⁶² Conrad L.I. Neve M, Nutton V. et al, *The Western Medical Tradition* .1995, p 467.

⁶³ The battle of Dettingen took place during the War of the Austrian Succession that opposed the British, Hanoverians and Austrians to the French. It took place on June, 16th 1743. As seen on www.britishbattles.com/king-georges-war-austrian/battle-of-dettingen/ on the 23/03/18.

In England, a treaty written by John Woodalls (1570-1643) in 1617 and entitled *The Surgeons' Mate* was used during a long time as a manual of naval surgery, as did later Richard Wiseman's *Several Chirurgical Treatises* in 1676.⁶⁴ As far as Wiseman (1622-1676) is concerned, he picked up much of his experience during the English Civil War, proving that the battlefield provided invaluable source of learning and practice for surgeons.⁶⁵ Besides, his account of military surgery revealed its horrors, with cannonballs and gunshot that caused horrifying wounds. In such cases, amputation and trepanation were often the only remedies, performed on the battlefield or on a storm-tossed vessel.

Moreover, surgery during war-time had largely been influenced by French surgeons, first with Ambroise Paré who revolutionised surgical procedures, and then with Dominique-Jean Larrey, who was at the origin of the changes he made in the structure of care provided to soldiers. First of all, Ambroise Paré was born in 1510 and was apprenticed to a barber-surgeon before serving in the army. Thanks to his experience on battlefield, he developed new techniques such as vascular ligature- vital for amputations- and a replacement for hot-oil cautery to cleanse wounds. As related in his *Method of Treating Wounds* (1545), he managed to concoct an ointment from egg yolk, rose oil and turpentine.⁶⁶ As such, the discovery of such techniques had an impact on the perception of surgeons and on surgery at large.

Another great surgeon, whose influence was significant in his country and its neighbours, was the French surgeon Dominique-Jean Larrey (1766-1842). His work developed around wars, with the French Revolution first and then the Napoleonic wars.⁶⁷ Thus, the nation needed military doctors, and Larrey signed up to enrol in the army as surgeon, first in the navy and then in battlefields. This is during the international war that broke out in 1792 that

⁶⁴ Porter, Roy, *Blood and Guts* (2003), p 112-113.

⁶⁵ The English Civil War (1642-1651) was a conflict between Charles I and Parliament over an Irish insurrection. <https://www.history.com/topics/british-history/english-civil-wars/> read on the 24/03/18.

⁶⁶ Porter, Roy, *Blood and Guts* (2003), p 113

⁶⁷ Haeger, Knut, *The Illustrated History of Surgery* (2000), p159

Larrey became convinced that the wounded could be saved through better organisation. This is how he created the first flying ambulance, as he described it himself in a letter to his general: “I now discovered the trouble it took us to move our bandaging stations- our military hospitals. According to the rules, they were supposed to stay about five kilometres from the army. The wounded were left on the field until the battle was over, or gathered at some convenient spot to which the ambulance rushed. But the roads were so choked with waggons, and such delays arose, that most of the victims died before the ambulance arrived. This gave me the idea of building an ambulance that was adequate to help the wounded during the actual battle. My suggestion was accepted and I received orders to construct a cart which I called the flying ambulance. My first plan was to transport the wounded on a horse-litter, but experience soon made me give it up. The next effort was to make a cart with good suspension, combining speed with safety and comfort.”⁶⁸ Larrey managed to create and organised his cart and the flying ambulance quickly had a great success.

At the end of the seventeenth and early eighteenth centuries, surgical practices underwent refinement. This was also the case for military surgery. Indeed, the greatly celebrated French military surgeon Jean-Louis Petit (1674-1750) developed a new practice for amputation at the thigh. To do so, he used an effective tourniquet which controlled blood flow. This method was used in combination with the vascular ligatures, as advocated by Ambroise Paré.

Despite all these facts, there are many debates about how much influence war and medicine have had on each other. In fact, it often appears that war moved medical-and more specifically surgical- practices and innovations forward or at least refocused research into specific conditions. Besides, war causes distress, displacement and death. It is true then that the vast degree of human suffering caused by warfare has prompted medical innovations and pushed surgical improvements in order to reduce human suffering.

⁶⁸ As quoted by Haeger Knut, *The Illustrated History of Surgery* (2000), p160.

Moreover, by the 1500s and 1600s, guns and cannons replaced swords and spears, giving army surgeons new types of wounds to understand and treat. Innovative methods of treatment were tried in the field by French surgeons such as Ambroise Paré. Yet, despite the new weapons, soldiers continued to die mainly from diseases and infections rather than because of their wounds, and thus remained true throughout the 1700s. Although it is often said that doctors had little influence on military practice because of the lack of hygiene among soldiers, some surgeons and physicians really made a difference, and surgeons took advantage of wars to become invaluable during battles, and later among society at large.

Indeed, some surgeons advocated new way of taking care of soldiers, or developed new technical advances and discoveries such as anaesthesia and sepsis on the battlefield. This is how Pringle gave his attention to gaol fever, noting the parallels between military and civilian diseases of dirt and overcrowding.⁶⁹ As a consequence to his observations he advocated barrack-room ventilation, good latrines and sanitation, as explained in his *Observations on the Diseases of the Army* (1752).⁷⁰ Moreover, Pringle was a promoter of the newly developed notion of antiseptis, which soon became prominent in the hygiene movement for the cleansing of ships, camps and gaols.

To conclude, the army played a key-role in the development of surgery and surgeons soon saw their status improved thanks to their role in the battlefield. Indeed, war provided a huge numbers of patients suffering from different wounds. As such, surgeons could perfectly practice their craft and science on them and this was a great part of surgeons' education. In fact, military surgery improved, and this was particularly true with the management of gunshot wounds. Moreover, as far as the British are concerned, their fleet had 247 vessels, each carrying a surgeon and his mate by the early eighteenth century. With war, surgery

⁶⁹ Gaol fever corresponds to typhus, as explained in *The Western Medical Tradition* (1995), p 467.

⁷⁰ Conrad L.I. Neve M, Nutton V. et al, *The Western Medical Tradition* (1995), p 467.

gained the trust of kings and statesmen and surgeons were attributed to a better place among society. Yet, as great as the surgical operations improved during wars, these technical advances could never have been done without other scientific discoveries, such as germs by Pasteur or a better understanding of anatomy. Finally, it can be argued that, for those with strong stomach and solid mental, naval or military service provided invaluable experience and a professional entrée in the harsh world of surgery.⁷¹

In this first part, we have seen that the evolution of surgeons' status was the result of the interaction of several factors, namely education, a change in the perception of disease linked to the Enlightenment and medical advances. As such, it becomes clear that this rise in status had several causes. In this part, the focus was made on the aspects that first stroke the researcher when studying this period: education and medical advances and their consequences. Now, it will be worth studying more deeply the consequences of reforms and a change in the way of thinking to understand more fully the development of surgery and the rise of surgeons' status.

⁷¹ Porter, Roy, *Blood and Guts* (2003), p 117

II. Social Changes: Cultural and Social Aspects of 18th-19th Century Medicine

“There is no more science in surgery than in butchering” declared Lord Thurlow, a member of British Parliament in 1800.⁷² As a matter of fact, surgeries such as amputations and mastectomies were painful, brutal and dangerous, for 30 to 50 % of patients died during the process in the 1830s, which contributed to the belief that surgeons were barbaric and unskilled. Nevertheless, this statement is only partially true since surgery was slowly evolving and improving in many fields. Indeed, if a renaissance in anatomy could have been observed in the sixteenth century and the beginning of modern physiological knowledge shaped the eighteenth century, the period from 1740 to 1880 had also been the theatre of medical evolutions and the status of surgeons began to change. In the eighteenth century, an intellectual movement known as the Enlightenment swept through Europe and started to challenge traditional authority as long as seeking the enlargement of human understanding and the progress of society, as explained by John Robertson in his work on the Enlightenment.⁷³ In fact, this intellectual movement had a great influence over British society at large and more specifically over the more and more influential medical world, which led to medical reforms, an expansion of medical practice as long as a development of the medical market place and the merging of physics and surgery.

1. Medical Reforms: A New Medical Thinking for a New Social Order

The study of the influence of reforms over society is very telling, for numerous reforms influenced the development of a new scientific order and a new medical thinking. In fact,

⁷² Raga Suzanne, *How Uneducated Butchers and Barbers became Today's Skilled Surgeons* (August 4, 2015) <https://mentalfloss.com/article/66664/how-uneducated-butchers-and-barbers-became-todays-skilled-surgeons> and Aggarwal Ankur, *History of Medicine: The Evolving Relationship between Surgery and the Medicine* (American Medical Association, Journal of Ethics February 2010, Volume 12, Number 2: 119-123)

⁷³ Robertson, John. *The Enlightenment: A Very Short Introduction*. 2015. Oxford University Press. Chapter 1

medical men of the eighteenth century appeared to be more interested in medical reforms than in the practice of their craft. This particularity can explain the extent of change among institutions at that time and the growing number of new methods of communication--such as periodicals for instance--used among medical practitioners. Moreover, the nineteenth century saw the creation of new institutions and formal mechanisms for regulating medical practices. All that was put into practice in order to distinguish the 'qualified' practitioners from the 'quacks'.⁷⁴ It also appears that not only were the structures of British Society changing, so too were its culture and values. As a matter of fact, different waves of reformist agitation arose in the 1820s and 1830s, including a campaign run by rank-and-file surgeons against the self-perpetuating narrow oligarchy heading the College of Surgeons at the time.

a. A Series of Reforms: The Influence of the Enlightenment over Medical Reforms and the Role of the Press and Medical Periodicals

Reforms started to become a matter of concern during the late eighteenth century and nineteenth centuries because of several factors. Indeed, urban improvement associated with economic growth led medical professionals to put the emphasis on space, hygiene and order, which are linked to the Enlightenment way of thinking.⁷⁵

From the beginning of the eighteenth century, Public Health started to become a national concern and a series of reforms arose to improve British people's health. Indeed, many epidemic diseases such as plague outbreaks appeared regularly until well into the 1700s, and diseases such as typhus, scarlet fever, measles, influenza, cholera, smallpox and diphtheria were very common until the late nineteenth and beginning of the twentieth centuries. This led surgeons and anatomists to investigate the causes of epidemics and diseases in general.

⁷⁴ Manchester 1824- The University of Manchester- Centre for the History of Science, Technology and Medicine. www.chstm.manchester.ac.uk/research/areas/medicalprofession/

⁷⁵ Langford ,Paul. Eighteenth Century Britain- p37

However, medical men of the time were limited in their research, mostly because there was a shortage of cadavers available to make dissections in order to understand how the body functioned. In 1752 a very unpopular law called the Murder Act was implemented. It was meant to guarantee that the corpses of executed criminals would be given for dissection to the company of the Barber Surgeons. These latter were less educated and well-bred than physicians, but with their haircutting and shaving tools of sharp blades and potions as well as with their knowledge of skin and blood, Barber-surgeons were perfectly well-equipped to take on medical challenges.⁷⁶

Indeed, if they were limited to hair-dressing, letting blood or pulling teeth the scope of their work widened and barber-surgeons gradually moved up from their local barber shop to more official medical practices, rubbing shoulders with the medical elite. With this increase in power the two professions started to be more and more separated with surgeons who wanted to be distinguished from barbers. This finally happened in 1745 when King George II separated the two professions and created the College of Surgeons. In 1832, the Anatomy Act passed by the British government regulated the supply of cadavers for medical research and anatomy teaching.⁷⁷ Anatomists were given access to ‘unclaimed bodies’, that is to say those who had died without any family coming forward to claim them for burial.

Previous to this, only the bodies of some executed criminals were legally available for dissections. At some point, the shortage of bodies was so great that some resorted to the crime of body snatching or -in other words- the stealing of bodies from graveyards. Moreover, this Act of Parliament gave freer licence to doctors, teachers of anatomy and bona fide medical students to dissect donated bodies. It was enacted in response to public revulsion at the illegal trade in corpses.

⁷⁶ Parker, Steve. *Medicine: The Definitive Illustrated History*. 2016. London: Penguin Random House.

⁷⁷ www.sciencemuseum.org.uk E2008.150.8

Nevertheless, not only the surgeons but the medical practitioners at large were concerned by this series of reforms. As such, the Apothecaries Act was enacted in 1815 in order to regulate the Practice of Apothecaries throughout England and Wales.⁷⁸ The Act introduced compulsory apprenticeship and formal qualifications for apothecaries under the licence of the Society of Apothecaries. It was the beginning of regulation of the medical profession in the UK. The Act required instruction in anatomy, botany, chemistry, materia medica and ‘physic’, in addition to six months’ practical hospital experience.⁷⁹ Despite the Act, training of medical people in Britain remained disparate. Thomas Bonner, in part quoting M. Jeanne Peterson explained that ‘The training of a practitioner in Britain in 1830 could vary all the way from classical university study at Oxford and Cambridge to a series of courses in a provincial hospital to ‘broom-and-apron apprenticeship in an apothecary’s shop.’⁸⁰

Furthermore, years of reformist agitation by provincial General Practitioners can be added to that. Indeed, they declared that their livelihoods were being undercut by unfair competition from ‘mere’ druggists and complained that their interest were not protected by any of the London corporations.⁸¹ That is why the Medical Act was enacted in 1858, and this act eventually established the General Medical Council and the Medical Register. These were two public lists of all recognized medical practitioners.

In 1799, the *Physical Journal* was founded and more and more periodicals followed this example, which allowed medicine not only to have researchers sharing their discoveries, but which also encouraged physicians and surgeons to go deeper into their quest for knowledge

⁷⁸ Porter, Roy. *Disease, Medicine and Society in England 1550-1860*. 1993. The Macmillan Press LTD, p45.

⁷⁹ The study of the origin and properties of substances used in the practice of medicine. Definition from the Oxford Dictionary of English. And in Porter, Roy (1999) [1997]. *The Greatest Benefit to Mankind: A Medical History of Humanity from Antiquity to the Present*. New York: W. W. Norton & Company. pp. 316–317.

⁸⁰ Peterson, M. Jeanne. *The Medical Profession in Mid-Victorian London*. 1978. University of California Press. p. 5. And Bonner, Thomas Neville. *Becoming a Physician: Medical Education in Great Britain, France, Germany, and the United States, 1750-1945*. 1995. Oxford University Press. p. 167

⁸¹ Porter, Roy. *Disease, Medicine and Society in England 1500-1860*. 1998.

and the betterment of the patients. Moreover, medical men yearned for sharing their expertise instead of keeping it secret. Besides, it is important to note that members of the Elite controlled these publications and the healing market at large. Consequently, medics had to be a member of the elite, traditionally from Oxford and Cambridge, if they wanted to be more powerful, and the press was an efficient way to spread new technologies and ideas. This is in this context that the famous periodical *The Lancet* was created in 1823 by the surgeon Thomas Wakley. It was the first medical journal to appear weekly rather than monthly and it is its regularity that enabled it to be highly topical. As a matter of fact, it quickly became the country's leading medical journal in which one could find transcriptions of medical lectures, news, correspondence and details of noteworthy cases.

Moreover, *The Lancet* was known for its fights against quackery and its propensity to campaign ferociously for medical reforms.⁸² For example, the evolution of the role of surgery and surgeons can be observed through the reading of this periodical. Indeed, as a surgeon Wakley was especially eager to establish his craft as a genuine medical profession. As such, the first issue opens with the transcript of a lecture given by the distinguished surgeon Sir Astley Cooper in which he describes the role of surgeons. It begins with the distinction made between surgeons and physicians. Indeed, Cooper explains that 'While it is the province of the Physician to attend to internal diseases, it is the duty of the Surgeon to attend to those that are external.'⁸³ This description corroborates the one given centuries ago by Hippocrates. Nevertheless, Cooper also notices that this traditional perception of the two professions is about to change.⁸⁴ Indeed the distinction between surgeons and physicians became less and less pronounced during the 1820s and in 1832 *The Lancet* published a lecture given by Professor Samuel Cooper in which he suggested the need to re-evaluate the relationship

⁸² Wakley, Thomas. *The Lancet* Vol I. Second Edition. London GL Hutchinson, 210 Strand. 1824. British Library: <https://www.bl.uk/collection-items/first-issue-of-medical-journal-the-lancet>

⁸³ Idem, p3

⁸⁴ Idem, p9

between the two professions.⁸⁵ More precisely Samuel Cooper declared that ‘neither a lecturer on surgery, nor a hospital surgeon, can be made as it were, by steam; and that the qualifications which he ought to possess, can only be acquired by hard study and a certain share of experience.’⁸⁶ Moreover, he explains that the term surgery is too narrow when referring to the handwork of barber-surgeons. Indeed, he highlights the fact that “to receive the term only in this limited sense at the present day, -to define surgery [...] as the mechanical part of physic, -and to imagine that a surgeon ought to be prohibited from prescribing internal remedies, are gross and mistaken notions.”⁸⁷ Indeed, his lecture clearly shows that Dr Cooper was against the contemporary boundary lines that separated the profession of surgeons and physicians. He wanted this clear-cut separation to disappear, for it did not correspond to the reality of surgical practice. Indeed, he explains that surgery is part of the scientific world-just the way physic does. In fact, he asserts that “we cannot regard surgery simply as a mechanical art, restricted to manual proceedings, the use of local applications, and the performance of operations. We must recognise it as a science, founded [...] upon the knowledge of the structure and functions of the human body, upon the right comprehension of the laws of the animal economy as a whole system or combination of organs, acting in union for the maintenance of life, upon the observation of the various causes which bring about changes of organisation, or affect the living action of parts; and lastly upon a just estimate of the power and fitness of every description of therapeutic means.”⁸⁸

Moreover, even the portion of surgery that can be considered as being mechanical ought to be under the guidance of scientific principles, generally deduced from anatomical, physiological or pathological considerations. It is interesting to note that the evolution of

⁸⁵ Wakley, Thomas. The Lancet 1832-32. London, Oxford, Oxfordshire: <https://www.bl.uk/collection-items/~link.aspx?id=ED7F308F016843509E42673DE1021188&z=z>

⁸⁶ idem, p1

⁸⁷ idem, p2

⁸⁸ idem, p2

mentalities and the reform movement also influenced the literature of the time. Indeed, George Eliot read early issues of *The Lancet* in order to help her understand the medical debates of the early 1830s, when her novel *Middlemarch* is set. As a matter of fact, this novel fully develops the theme of changes and one of the characters, a surgeon called Lydgate, objects to the ‘irrational severance between medical and surgical knowledge’ and often acts in the capacity of physician.⁸⁹ Just like Cooper he makes the bold suggestion that trainee surgeons should study anatomy and physiology before they move on to study surgery.

This clearly highlights the changes of perspectives which allowed an evolution not only in the perception of medicine but also in the role of surgeons and surgery. Actually, this thirst for change on the part of surgeons and the medical world at large shows that all the reforms implemented were made to achieve more respect, a better status and its recognition by the government as much as trust, authority and an homogeneity in the education of surgeons and physicians. More than that, it can be asserted that the great achievements of this time were made thanks to medical reforms. Indeed, by the middle of the nineteenth century, one’s status was more and more determined by one’s profession and not only by one’s birth. Besides, all these changes reflect the influence of the Enlightenment, with its new faith in human potential, hence a growing confidence of, in and for medicine in the eighteenth century. However, greater knowledge led only rarely to more effective cures and there was little sign that the war against ill health and disease was being won. Indeed, the decades around 1700 saw epidemic diseases and mortality rates rising throughout Europe with the growth of giant ports and trading routes, as long as the increasing commercial contact with population overseas and the mushrooming of the urban poor. This fragile Health environment was a rich ground for trade and a fight for potential patients started in the eighteenth century.

⁸⁹ Eliot, Georges. *Middlemarch*. 1994. Penguin classics, chapter 15.

b. A Change in Medicine's Hierarchical Structure

It is true that many reforms occurred in the early nineteenth century, and these reforms had a significant influence over the medical world and medical thinking. Indeed, a change occurred in the structure of the medical profession in the late eighteenth and nineteenth centuries, but elite medicine remained a significant feature of the social and cultural landscape.

In fact, medical men started to organize themselves into new societies. At the time, it was not so easy for surgeons to impose themselves because physicians wanted to preserve their status. The separation of Barber-surgeons was fundamental to explain their rise in status. Moreover, the repression of empirical practitioners greatly helped with the establishment of a new hierarchical structure, and surgeons became interested in new medical fields such as obstetrics for instance. In 1827, surgeons began to be part of the university students with the foundation of London University and the opening of schools of anatomy. In addition to that, it can be asserted that medicine and surgery were surely concerned with the treatment of corporeal disorders but medical practitioners did not self-identify solely or even primarily as healers of the sick or antagonists of disease, neither did they imagine themselves as being constituent members of a singular group.

Moreover, there was a general diffusion of utilitarian ideas throughout medical reformist rhetoric.⁹⁰ In fact, a change in the hierarchical structure is linked to a change in a way of thinking and to changes within society at large. More precisely, these changes in the perception and structure of the medical world and medical men are linked to ideas related to

⁹⁰ Utilitarianism: a doctrine that the useful is the good and that the determining consideration of right should be the usefulness of its consequences; specifically: a theory that the aim of action should be the largest possible balance of pleasure over pain or the greatest happiness of the greatest number. Definition from Merriam Webster Dictionary <https://www.merriam-webster.com/>
And in EHR, cxxiv.511, (Dec.2009), English Historical Review, Vol.CXXIVNo.511, *Medicine, Reform and the 'End' of Charity in Early Nineteenth Century England*.

the Enlightenment and the development of humanism. This is about at this time that the patriarchal behaviour of physicians started to be challenged by other medical practitioners. Indeed, there was a development of anatomical and physiological knowledge- with surgeons leading the way to new experiments and understanding of the human body and diseases. This change in perception led to a new vision of medicine and medics.

A significant example of this point can be highlighted by the work of John Snow, who first was a physician and then a surgeon. The fact that Dr Snow first studied physic and then developed surgical skills is very telling when thinking of the structure and hierarchy of medicine. Indeed, physicians were first considered as the leader of all medical improvement and functioning. Yet, this was not the case any longer in the late eighteenth and early nineteenth century. Indeed, physic was moribund, for new knowledge could only be acquired through the study of anatomy, physiology, chemistry and pathology. As a direct consequence to that, the study of physic alone was not enough to cure patients and to understand how diseases worked.

As a matter of fact, it was doctors like John Snow who helped medical knowledge to develop beyond its formal borders. This fact can be highlighted by the cholera outbreak in 1854, when Doctor Snow demonstrated that infection was caused and spread not by miasmas but by contaminated water. In the case of this 1854 cholera, the danger came from a public pump in Soho, London. Once the pump was removed, cholera vanished, which made possible for public health officials to push forward projects to provide clean water, separate sewage systems and rubbish removal in urban areas. At the same time, a legislation to provide improved housing – in order to reduce overcrowding- was implemented.⁹¹

⁹¹ Duffin, Jacalyn. *History of Medicine: A Scandalously Short Introduction*(1999). University of Toronto Press: Canada, pp. 148-149. And in the *Cambridge Illustrated History of Medicine* (eds Roy Porter) (1996) Cambridge University Press, p 376.

As such, it soon appears that the betterment of medics' understanding of diseases and the human body was linked to the improvement of anatomical and surgical knowledge as much as physiology and chemistry. As a consequence to that, the hierarchical structure of the medical world became more and more blurred throughout the nineteenth century. There was no such thing as physicians controlling every medical trade and having the monopoly of curing the sick. Indeed, both surgeons and apothecaries gradually stopped being at the service of physicians and became more independent. This thirst for independence led to a free-market economy and was a factor for the rise of surgery and general practitioners.

2. A Prolific Medical Place: When Health is a Good

The College of Physicians or the Company of Surgeons by no mean improved the standard of English medicine during what we may call the long eighteenth century. Besides, the College suffered some reverses around 1700, falling out royal favour. It also lost its monopoly right to prescribe medicine in London. Henceforth, the Lords ruled, which means that apothecaries might also have been able to prescribe medicines but could only charge for their drugs and not for their advice. After this defeat, the College of Physicians grew introverted. Indeed, it largely abandoned the attempt to exercise its police powers to prosecute unlicensed practitioners, which greatly contributed to the rise of irregular practitioners and medical dissenters. In fact, only graduates from Oxford and Cambridge could be fellows and as such could be considered as licenced physicians. However, many of the best physicians and later surgeons were Dissenters in religion and consequently studied either at Leiden in the Netherlands or at Edinburgh University, which boasted the top medical school in the world.

During the eighteenth century, medicine was becoming more and more commercialised. In fact, this phenomenon followed the industrial revolution and a very strong economy. Indeed, at this time, manufacturing industries were growing and the numerous wars made doctors-and more particularly surgeons- essential for the country. Moreover, the development of manufactures and of British economy helped creating a new class of people commonly called “the middling sort”, which included professionals, clerks, independent farmers, schoolmasters, attorney, etc. As such, there was a growing demand for new available goods. These people also had more leisure time and were spending more and more on services. It was a consumer revolution and we will see how the medical profession took advantage of this period to develop a medical market place but first we will see how people chose their practitioners in this developing market place.

a. Patients’ Choice in an Open Market

Medicine in itself did not point to a single profession, to a particular view of disease or to a particular sort of institution in the 18th century. Treating and caring for the sick were no one’s monopoly and at that time there were plenty of sick to be cared for because of the numerous diseases and epidemics people were confronted with. Compared to today’s medical world, the practice of medicine was not closed. Indeed, a wide range of people could be part of the medical profession. It is also important to remember that sickness and death were part of everyday life during the eighteenth and nineteenth centuries. This was mostly due to squalid living conditions and chronic diseases. Medicine was at best only partly successful in healing people and the medical world was unfair for its patients. Moreover, there was still some order or assumption in the treatment of the sick and this order was that of a parochial, patronage-based in an increasingly commercial society.

Another interesting point is that the state did not intervene in Public Health. In fact, matters such as provision for education, the protection of helpless and the care for the sick were regarded as the responsibility of the individual, the family or the parish, not of the state. In the eighteenth and nineteenth centuries, England was economically strong thanks to the colonies and the Industrial revolution. So, medicine was becoming more commercialized in the eighteenth century thanks to this very strong economy. In this prolific market place health didn't go against the rule and was considered as a good the same way raw materials were. This can explain the great number of medical professionals who made a living from this peculiar trade.

If it is because of high demand that health must have been considered as being another kind of good, the great number of medical men can also be explained by the fact that calling for a physician was not cheap at all, hence the presence of other medical men such as apothecaries, surgeons, guilds or medical corporations, mountebanks, quacks, charlatans and other so-called specialists. Moreover, there were many healing resources at sick people's disposal in the eighteenth century, but their access was in truth greatly restricted. For most people, choice was determined by geography and wealth. The type of healers available in the area depended on which of the nation of the Kingdom you lived in and if you were living in a city, in a town or in the countryside. Choice was also channelled by other factors such as culture, political beliefs and your place within society. Having money made the widest range of choice available and the growing demand for health care was part of a consumer revolution. Medicine was no exception with the use of advertisement in periodicals for example.

For instance, if you were wealthy you could afford a physician who would treat you with medicines or call for a surgeon. However, if you couldn't afford a physician you often had to see several times and whose fees were often very high, you could go directly to the

surgeon for bloodletting or to the apothecary who would sell you some so-called miraculous drugs. By doing so, people avoided the physician fees which outraged them. This also contributed to the expansion of irregular practitioners. If you were part of the poorest part of society, family or a neighbour might have been the first and last resort in sickness. Very often in the countryside there was a person- usually a priest or a gifted person- who knew things about herbs and bone setting. As far as delivering babies was concerned, it was a matter of women, and most often, the oldest woman was the one in charge of giving birth.⁹² Often, though, people tried to heal themselves without any external help.

This was made possible by William Buchan books; *Domestic Medicine*⁹³ According to Charles E. Rosenberg, William Buchan's work was "both a book to read and a book to use."⁹⁴ But who were the users of this book? People who purchased and relied on *Domestic Medicine* were not drawn primarily from the ranks of large landholders, clergymen and schoolteachers associated with them. This book was not meant for the peasant either, and still less for the workers in manufacturing industries. In fact, Buchan talks about them in condescending terms, but not to them. Moreover, there is a moral judgement for the idle and rich and he directly scorns them.

Consequently, the purchaser of Buchan's *Domestic Medicine* would most probably have been part of the literate, servants and self-conscious middle order. In other words, this book would have been directed to people who would think twice before spending their hard earned shillings and pounds on physicians and surgeons. For instance, Buchan explains in Chapter IX that "most diseases are infectious" and as such encourages them to "avoid all

⁹² Porter, Roy. *Disease, Medicine and Society in England, 1550-1860*. 1993, Chapter 2.

⁹³ Buchan, William. *Domestic Medicine* (1812, first edition 1769)

⁹⁴ Rosenberg, Charles.E. *The Fielding Medical Lecture. Medical Text and Social Context: Explaining William Buchan's Domestic Medicine*.

communication with the diseased”.⁹⁵ His prose is simple and all his advice is clear. He explains also how people get sick and how this could be avoided with the example of infections. He also wrote a chapter on cleanliness in which he promotes an absolute cleanliness to avoid disease.⁹⁶ However, William Buchan also criticises clergymen who because they know how to let blood “plays the surgeon”.⁹⁷

According to him, laymen shouldn't be expected to employ a catheter, cut for the stone or perform tracheotomies for diphtheria. Even in cases of difficult teething a surgeon was the only practitioner appropriate for lancing the patient's gums. Moreover, a surgeon should be called immediately in any unnatural labour. Charles E. Rosenberg explains Buchan's ideas in those terms: “The widespread ability of laymen to bleed, to dress wounds and even set fractures didn't mean that there shouldn't be a sharp distinction between the proper spheres of lay and medical practice in surgery” All that suggests indeed that surgeons could not be replaced, which reveals Buchan's view on the surgeon's status.

Besides, establishing an appropriate boundary between lay and professional practice was a particular concern for Buchan the same way controlling and ordering medical knowledge were. He strictly banished practices involving magic or any kind of charms as confirmed by those words: “for the great variety of infallible remedies for the bite of a mad dog, which are to be met with in almost every family. Though not one in a thousand has any claim to merit, yet they are all supported by numberless vouchers. No wonder that imaginary diseases should be cured by imaginary remedies.”⁹⁸

Besides, the eighteenth century was the era of drugs. Indeed there were no restriction on drugs, and people could buy everything they wanted. As a matter of fact, it can be said

⁹⁵ Buchan, William. Domestic Medicine Chap IX On Infection.

⁹⁶ Buchan, William. Domestic Medicine Chap VIII Of Cleanliness

⁹⁷ Buchan, William. Domestic Medicine Chap L Of Surgery

⁹⁸ Buchan, 1769, p530

that this Golden Age of selling drugs proved that people were more willing to pay for new drugs than for advice, but medical men also managed to take advantage of the situation.

b. Medical Men Advantages in this New Market Place

In England the medical trade was very active because the Monarchy did not have the authority to work against guilds and medical corporations. Moreover, at the time your reputation was more important than your education and personality. Convincing and inspiring trust were two important qualities. Besides, there were no or few obstacles to medical practice, which explains the number of irregular practitioners who made money by making people dream about eternal health and promising magic powder that could heal everything. However, there were also a lot of specialists such as dentists, oculists, experts in disorder of the ears, electrical treatment or other cures.⁹⁹

In fact, medical men recognized very quickly the benefit offered by an expanding medical provision, both private and public. In turn, they eagerly cashed in on the new opportunities. The eighteenth century saw the practice of medicine flourishing as never before, but this was not linked to tremendous revolution in the practice of medicine or to effective new skills. It was in fact more a matter of top physicians acquiring a certain substance, a veneer of culture and urbanity. They consequently turned themselves into a category of well-bred men who would be part of high society circles and more particularly among ladies who felt they could trust them and consequently admitted them in their circle. These practitioners were genuine gentlemen who could consequently charge their patient more. Indeed, for those at the top of the tree incomes soared. For example, the surgeon William Cheselden could charge £500 for

⁹⁹ Porter, Roy. *Disease, Medicine and Society in England 1550-1860*. 1993

a lithotomy operation.¹⁰⁰ He could charge so much because he could do this operation in less than five minutes, which would be appreciated in a time without anaesthetics. Roy Porter even suggests that before anaesthetics brevity was “the soul of surgery.”¹⁰¹ And indeed, provincial physicians such as Erasmus Darwin earned over £1000 a year thanks to their dexterity.¹⁰² Other great doctors of the time such as Lettsom, Mead and Hunter all probably topped £10,000 a year which was equivalent to the income of a minor lord. Also, the fees small town apothecaries and country surgeons could command steadily rose during the eighteenth century. Business consequently became brisker.

Moreover, there were other ways to make profit for the medical profession. Indeed, another well-paying new treatment was smallpox inoculation often performed by surgeons who might charge a guinea per injection.¹⁰³ Yet, surgeons were not the only ones to be interested by the lucrative aspects of inoculations and some practitioners consequently set themselves up as specialist inoculators. The more successful were the Sutton Family and Thomas Dimsdale. Indeed, the Sutton Family was a family of provincial surgeons who claimed to have performed 300,000 inoculations, bringing an annual income close to several hundred pounds. As far as Thomas Dimsdale is concerned, he was a country physician who was invited to St Petersburg by Catherine the Great to inoculate her and her son. His reward was £10,000 plus £2000 expenses and an annuity of £500.¹⁰⁴

Other routes leading to fame and fortune in this market place can be cited. For instance, the army and the navy were very lucrative because the state would favour surgeons, who were great allies during warfare. University training was also fashionable for medical men who wanted to earn some money. Here, we are consequently analysing medical

¹⁰⁰ A lithotomy operation consists in removing bladder stones

¹⁰¹ Porter, Roy (1993), p40

¹⁰² Porter, Roy.(1993), p40

¹⁰³ idem, p41

¹⁰⁴ idem, p40-42

instruction not for education's sake but to earn money. Indeed the demand for education among surgeons was growing as they were eager to pay to follow classes in anatomy, physiology etc.¹⁰⁵

Specialisation in medicine also led to new career openings such as the management of lunacy, which proved to be very lucrative. As such the "trade of lunacy" began.¹⁰⁶ It was based upon private so-called "madhouse" and enterprising doctors who charged elevated fees to the friends and family of affluent patients whereas lower fees were granted to parishes' lunacy. There was no regulation of asylum by the state, which mean that some of these places were prisons in which patients were abused and mistreated whereas other were reputable institutions run by high-minded doctors eager to develop psychiatric expertise. In both cases however, the lunacy trade was a very profitable business.

Many fields of irregular medicine were growing in tandem with the expansion of regular physics, surgery and the apothecaries' trade. In other words one sort of medicine created business for another. Irregular medics, quacks and other non-official medical men took the opportunity offered by a medicine hungry market. The eighteenth century has even been called "the golden age of quackery."¹⁰⁷ And indeed, quackery was the most entrepreneurial sector of medicine, and some like Joanna Stephens, made good money. She found a remedy to dissolve painful stones without surgery and this remedy was bought by the government because of its success.

To conclude, it is interesting to note that medical practice remained strictly regulated in German states and France but in England, English law and the government largely followed the free market maxim of caveat emptor, "let the buyer beware". However, the eighteenth

¹⁰⁵ idem, p42

¹⁰⁶ Porter, Roy. (1993), p43

¹⁰⁷ Porter, Roy. (1993), p44

century proved to have undergone a genuine consumer revolution which by no means excluded the medical world and which also led to greater changes in medical practices. These changes affected society at large and a change in institutions' importance could also be observed. In fact, it is at this time that religion became less important than science in some domains such as health and the welfare of the population.

3. The Merging of Physics and Surgery and the Emergence of General Practitioners

a. The Birth of Pathological Anatomy

“Anatomy is to physiology, as geography to history; it describes the theatre of events”¹⁰⁸

Despite major accomplishments in anatomy in the seventeenth century, this field of research was concentrated mostly on anatomical discoveries and artistic portrayals of the normal and healthy human body. Indeed, anatomists did not relate the structure of organs or tissues to disease at the time. Yet, scientists- and among them William Harvey- did begin to apply the new knowledge about the structure of the human body and tissues to the study of their functions. As such, physiology, rather than medicine, was the first to find applications for the new anatomical research.¹⁰⁹

Thanks to the development of ideas linked to the Enlightenment, the study of human cadavers had become more respectable. In fact, this new philosophy of knowledge, called sensualism by Jacalyn Duffin, suggested that all wisdom came from observation through the various senses. As such, observations were venerated, while theorizing and book-learning were more and more set aside. Anatomical studies were finally seen to fit perfectly this new

¹⁰⁸ Fernel Jean, *On the Natural Part of Medicine*, 1542, preface (cited in Duffin 1999, p 11)

¹⁰⁹ Duffin, Jacalyn. *History of Medicine: A scandalously Short Introduction*. 1999. University of Toronto Press, pp. 28-30.

tradition of accumulating knowledge thanks to experimentation and experience. This idea was soon reinforced by artists who started to paint distinguished anatomists at work, surrounded by their students. This is the case in Rembrandt's painting of the lesson of Dr Tulp, in which a surgeon carried out a dissection under the eyes of his students.¹¹⁰

Other artists started to create wax models which soon became an important material for surgeons' education. Also, one point is worth being highlighted at this stage: Anatomists were most often surgeons, partly because physicians did not show interest in the vile art that surgery represented at the time, and most of them did not see the point of dissecting cadavers. Also, very soon in the history of modern surgery, museums were founded by some surgeons in order to preserve the most elegant dissections and wax models for future references. A great example of that is the Hunterian Museum in London.¹¹¹

At the beginning of the nineteenth century, technological advances and a reconfiguration of disease concepts changed medical attitudes toward anatomy. Indeed, the improvement of diagnostic techniques- such as auscultation and percussion- made it possible for surgeons to detect structural changes inside the patient's chest. It is also interesting to note that it is at this time that names and concepts of diseases changed from being subjective symptoms- such as hemoptysis or shortness of breath- to associated anatomical lesions- such as pulmonary effusion and emphysema. In fact, diseases increasingly became more anatomical, which led medicine to move in the same direction and adopt the study of anatomy as a medical field of research.

¹¹⁰ Cf. Annexe 5

¹¹¹ The Hunterian Museum boasts unrivalled collections of human and non-human anatomical and pathological specimens, models, instruments, painting and sculptures. As described in the Royal College of Surgeons' website <https://www.rcseng.ac.uk/museums-and-archives/hunterian-museum/about-us/>

Besides, anatomy and physiology are at the service of pathology. Indeed the word pathology derives from the Greek words “suffering” and “theory about”, which means that the word pathology can literally be translated into “the study of suffering”. However, its meaning has been narrowed to represent material knowledge about diseases. In fact, pathology is linked to anatomy and physiology, and it is used to identify and diagnose the patient’s suffering and diseases. Moreover, pathological anatomy has other functions. Indeed, its purpose is also to identify what is normal and what is abnormal. It is interesting to note that this perception of what is considered as being normal- or not- is strongly conditioned by one’s culture, religion, economics, race, class, gender, and other social and biological factors. As such, some diseases and phenomena once considered as being abnormal are now considered as mere variant of what normality can be. This is true for homosexuality, for instance, at a time when sexual orientation was controlled by the Church, and any deviance punished and considered as evil practice or diseases to be cured. On the contrary, other phenomena not considered as being diseases, are now treated by specialists and medics. This is the case for psychiatric problems or hypertension.

Moreover, studying and analysing the pathology of a disease also justifies the use of some treatments instead of others. In fact, most treatments were discovered thanks to empirical observation done on a corpse rather than by reasoning from books. Finally, pathological anatomy has been used to prove the reasonableness of an explanation, a diagnosis and a treatment. Post-mortem examinations are the most obvious form of these functions. Indeed, anatomical proofs became more and more important after 1800, a time when disease started to be linked to organic changes, and when the number of lawsuits for malpractice began to rise. It was also a way for surgeons to answer the following questions:

Was the diagnosis correct? Could anything else have been done? As such, dissections worked hand in hand with pathological research.¹¹²

If today the concept of pathology is almost inseparable from anatomical changes, it was not the case two centuries ago, and the relevance of anatomy to bedside medicine was obscure for several reasons. First, the changes inside the body were unfortunately hidden until the patient was dead. Then, alterations seen during autopsies might have resulted from death itself and not necessarily from diseases, and finally, internal changes could not be repaired, at least until the advent of anaesthesia and sepsis in the second half of the nineteenth century. Yet, surgeons interested in anatomy carried on dissections and managed to establish the boundaries of normal and abnormal structures.

A synthesis between anatomy and clinical medicine took place in the early nineteenth century with the advent of physical diagnosis. Indeed, the symptoms found in living patients could now be linked to anatomical changes. This embodies a shift in the concept of diseases, that is to say a shift from an emphasis on how the patient felt to an emphasis on what lesions could be discovered.¹¹³

In this period, several descriptions of diseases appeared, each reflecting the new scientific preoccupation with anatomy. Named after their discoverers, these diseases were connected to the specific organic change that constituted their diagnosis, for instance Bright's disease of the kidney (1827), Hodgkin's disease (1832), Grave's disease (1835) and Addison's disease (1855).

By the 1830s, microscopy had entered the realm of diagnosis and diseases could now be identified and classified by their changes at the level of tissues. Technological innovations

¹¹² Duffin, Jacalyn. *History of Medicine*. 1999, pp. 64-66.

¹¹³ Duffin, Jacalyn. *History of Medicine*. 1999, pp. 75-77.

linked microscopic and sub-microscopic changes in structure to illness. This method prevails in our present system of medical knowledge. In order to determine what disease a patient has, doctors seek lesions, be they anatomical, chemical – with for instance a high blood sugar- or physical- with low blood pressure for example. In fact, the clue to diagnosis is not so much how the patient feels, but what the doctor finds, which means that a person no longer needs to feel sick to have a disease. Besides, as explained by Jacalyn Duffin, anatomical methods used for the description and the identification of diseases correspond to the organismic theory, and can be both external- that is to say ontological- or internal- in other words physiological, with respect to causes.¹¹⁴ Moreover, as argued by the scientist and doctor J.M Charcot, “symptoms, then, are in reality nothing but the cry from suffering organs.”¹¹⁵ All these points associated with the development of the Germ Theory introduced by Louis Pasteur, are the proof that the birth of pathological anatomy changed the face of medicine. Indeed, pathology, associated with physiology and anatomy, was not only linked to diagnosis. It also allowed surgeons to have a more prominent place in the medical world, and this source of power soon proved to be at the origin of a new approach of medicine, namely general medicine and general practitioners.

b. The Emergence of General Practitioners: The Company of Surgeons vs. Surgeon Apothecaries.

There was a rigid hierarchical structure of the medical profession from the early sixteenth century, and this structure lasted no less than three hundred years until the nineteenth century. Indeed, there was no homogeneity among medical practitioners and each recognized profession was to follow specific rules decided by the supreme authority: the physicians.

¹¹⁴ Duffin, Jacalyn. *History of Medicine* 1999, p 79.

¹¹⁵ Charcot J.M. *Clinical Lectures on the Senile and Chronic Diseases* (1868; English edn, London: Sydenham Society, 1881), p 4.

In fact, there were three orders of the medical profession, namely the physicians, the surgeons and the apothecaries. These ones were sharply delineated, rigid and complete in themselves. They formed a pyramid of practitioners available for people, the wealthiest asking for a physician's help and the poorest going to the surgeon or apothecary. At the top were the highly educated physicians, whose job was to diagnose a disease after his patient's own description of his sufferings. After having made a proper prognosis about the development of the disease, the physician would either call for a surgeon or prescribe treatments and medicines dispensed by the apothecary. "Physic", as described by Roy Porter was the science of physicians and was founded upon a superior university education, with physicians serving the social elite of society. They also belonged to the very restrictive Royal College of Physicians and considered other practitioners as being servant of their science.¹¹⁶ The College was founded by Linacre in 1518 during the reign of Henry VIII, and physicians were granted many privileges that placed them above other medical practitioners.¹¹⁷

Beneath the surgeons were the apothecaries or druggist, whose work were considered as being inferior because apothecaries kept shop and pursued a trade. Yet, there was a rivalry between physicians and apothecaries, mostly because the later knew more about drugs than physicians. As such, they often gave advice to patient who directly came to them in order to avoid paying higher fee for a physician. Besides, apothecaries soon became linked to surgery, and surgeons and many medical men- mostly in the countryside- had the double function of surgeon-apothecary.

Despite the emancipation of surgeons from barbers and of apothecaries from the Company of Grocers, the rigid hierarchical structure of the profession and its three orders was still significantly present at the beginning of the nineteenth century. However, surgeons

¹¹⁶ Porter, Roy. *Disease Medicine and society*. 1993, pp. 11-12.

¹¹⁷ Bloor, D. "The Rise of General Practitioner in the nineteenth century" Journal of the Royal College of General Practitioners, May 1978- p 289

were having more and more power and were often associated with apothecary from the late eighteenth and early nineteenth century, which had great consequences in the medical practices of the time. Besides, there was a general dissatisfaction among physicians, surgeons and apothecaries. This is this discontent that truly affected medicine and its practitioners, which led to a restructuration of the medical world. Here again, it is interesting to notice the role and influence of France in the process. Indeed, the French Revolution swept away the old institutions and there were big breakthroughs in medical science which principally applied to pathology. British people were aware of these changes and wanted to put them into practice in England and within medical corporations.

Moreover, the Industrial Revolution during the first half of the nineteenth century was a time of tremendous changes in the United Kingdom. Indeed, people were leaving the countryside en masse to set up in town or in cities. This movement of populations soon highlighted massive health issues linked to housing, sanitation and water supplies in relationship to diseases. More doctors were consequently in demand, with a new middle class created by industrialization that demanded more medical care. Yet, it was the Apothecary Act of 1815 that first led the way to the emergence of general practice. Indeed, this act produced significant changes on the medical scene that were without parallel in our history of medicine. One man in particular, Anthony Todd Thomson, was very active and influential in the transformation of the traditional tripartite medical community into a more general practice. Anthony Todd Thomson was one of the first successful General Practitioners and was proud to use that term even before it was commonly accepted. He was licensed as a surgeon during the first half of his career, but as he was also equally interested in pharmacy and therapeutics, he was then considered as a physician. In fact, the medical man saw great advantages in the combination of medicine and surgery.

Anthony Todd Thomson was also a reformer and played a significant role in securing the passing of the Apothecary Act of 1815. This act was to give a huge authority to the powerless apothecaries. He was in fact part of the medical men who thought that knowledge in botany and pharmacopeia was necessary in order to be a good doctor. As a teacher in London University, he consequently taught his students the necessary skills for dispensing in general practice, but advised them not to sell their drugs. Indeed, they were doctors, not tradesmen. Besides, Thomson was also editor of one of the earliest medical journal, which contributed into making him the embodiment of the merging of physic and surgery.¹¹⁸

Moreover, the split between the three orders began with the Rose Case. Originally, apothecaries were tradesmen and belonged to the Company of Grocers, which means that the majority of their work was made of retailing groceries and culinary spices and their importation. Soon, the apothecaries wanted to be separated from other tradesmen, the same way surgeons wanted to be dissociated from barbers. The year 1617 saw the birth of the Society of Apothecaries, more than a century before the creation of the College of Surgeons. As a consequence of that, apothecaries became very present on the medical scene, especially after the plague struck in 1666. Indeed, just like surgeons, they remained in cities and towns while physicians ran away to protect themselves. They gave up on their patients, and surgeons and apothecaries took advantage of the situation to become closer to sick persons and gain the population's trust.

Not only apothecaries were dispensing drugs, but they were increasingly prescribing and selling them to lower classes, which led to conflict with the Royal College of Physicians. Indeed, physicians wanted to be the only ones prescribing medicines, which led to a series of

¹¹⁸ Williams, David Innes. "Anthony Todd Thomson and the rise of General Practitioners" Journal of Medical Biography 2002; 10. London UK, pp 206-214.

lawsuit in 1703 and 1704 called the Rose Case.¹¹⁹ Eventually, the House of Lords allowed apothecaries to prescribe drugs as well as dispensing them. This marked the first crack in the rigid hierarchical system. Surgeons became closer to apothecaries and soon the term “general practitioner” came to be used.

Yet, the real end of the rigid tripartite hierarchical system in the medical profession came with the passing of the Medical Act of 1858. After that, there were legally qualified practitioners who were equal before the law, whether they possessed a degree a licence or a diploma. It was also around this time that a General Medical Council was created. Besides, it was only in 1886 that the Second Medical Act defined a conjoint examination in medicine, surgery and midwifery. However, it is interesting to note that both Colleges refused to admit the Society of Apothecaries to this general examination, but general practice carried on its development. Also, surgery had a significant role in the development of general medicine, and this is partly due to the development of pathological anatomy. Indeed, the locating of diseases through dissections and observations led to the merging of physic and surgery. In fact, the technique of surgeons was taken and applied to what happened inside the body, area of studies of the physicians. Nevertheless, the surgical approach took up in internal medicine and soon became the most important approach. Surgeons were not only surgeons anymore. They were also physicians or apothecaries. To conclude, this merging of knowledge and practices marked the birth of General Practitioners as we know them today.¹²⁰

¹¹⁹ Bloor, D. “The Rise of General Practitioner in the nineteenth century” Journal of the Royal College of General Practitioners, May 1978, p 290.

¹²⁰ Bloor DU. Journal of the Royal College of General Practitioners, May 1978, pp. 289-291.

III. The Dark Side of Surgery: 19th century Illegal Practices

1. Medicine and Religion: Struggle between Science and the Sacred

“The presence of some kind of soul was indisputable as a source of animation but, Boerhaave¹²¹ judiciously maintained, to pry into the secret of life was beyond the remit of medicine. The Christian immortal soul was best left to priests and metaphysicians: medicine should study secondary not primary causes, the “how”, not the “why” and “wherefore” of the workings of the body.”¹²² This is how religious believes narrowed the research done within the field of medicine, forbidding practices such as dissection or a too-close analysis of the functioning of the human body. Even if the ascendancy of the Church was waning during the nineteenth century, some subjects- such as the use of bodies in medical research- were still taboos. Besides, dissections were first seen as a punishment and not as a way to improve surgical knowledge, which deeply influenced the gloomy perception of this practice. As such, the only way for respectable surgeons to gain medical knowledge and better understand the human body was to fall into dark practices. This is why it is necessary to understand what was the legal practices of the time and how surgeons could dissect legally before understanding why and how surgeons could satisfy their growing need of cadavers to dissect. In order to understand that, it is worth analysing the influence of religion and the ever more powerful hold of science over the Church before describing how the practice of dissections was organized in Britain and France and what led to sombre practices such as body snatching and burking. Finally, it will be interesting to notice how literature influence lay people’s perception of such practices throughout time.

¹²¹ Herman Boerhaave (1668-1738) was a professor at Leiden and the greatest medical teacher of his day.

¹²² Porter, Roy. Blood and Guts (2003)

a. Religion at the Centre of Healing Matters

Christianity has always had an ambiguous attitude towards medicine. Indeed, some preachers emphasized the power of faith to cure disease and from 370 AD the shrines of saints and martyrs became places of pilgrimage for the sick. By 1000, shrines were competing among themselves in the number of their cures and some saints were even visited for specific diseases. For instance, St Dymphna for mental diseases, St Roch for plague epidemics whereas St Hubert was summoned by rabies sufferers and St Blaise in case of throat complaints.¹²³ Moreover there was also the notion of a whole community bound by religion anchored in the customs of the time. To be more precise it can be asserted that medicine had its part in how the community functioned but religion was at the centre of healing matters. As a matter of fact holiness was very much present in healing and even the surgeon skills and the workings of drugs were considered as being examples of the bounty of God towards humanity, for He gave some plants and people special power to heal the sick. Falling sick was the sign of somebody being cursed or possessed or of somebody having been malevolently inflicted through magic or spells. As such, sickness was targeted, which means that sickness was the sign that forefathers have been slighted, taboos breached, ceremonies neglected or God having been made angry. Being sick was thus a sign of reprisal or punishment. Because illness was regarded as the outcome of personal, social and religious beliefs and behaviour, healing was no mere technical, clinical procedure. Indeed, it involved kin and community and requires rituals that ceremonially cleanse the polluted, offer reparations and exorcise ghosts. Rituals, incantations and sacrifices were thus fundamental to healing.¹²⁴ Moreover, into the 1800s in England, beliefs in the healing power of prayers were indeed in decline among an

¹²³ Porter, Roy. *Medicine Cambridge Illustrated History of Medicine*. 1996, p64

¹²⁴ Porter, Roy (1996), chapter 3, p82.

educated and relatively privileged minority. Yet, the majority of the population continued to embrace it, mostly because most people were confronted by terrible living and working conditions. They saw salvation in the prospect of a heavenly afterlife and believed in the healing power of prayers. A noticeable example of this phenomenon would be the story of The Prince of Wales's recovery from typhoid in 1871, which had been widely thought to have resulted from nationwide prayers, the work of medicine having been incidental in comparison.¹²⁵ Indeed, it can be asserted that holiness and healing went together. Indeed, Christ himself had performed no less than thirty five healing miracles, such as giving sight to the blind or making the lame walk and thus in order to demonstrate His power.¹²⁶ Besides, the Church also explained diseases as a test made by God to control the strength of their faith. This argument is highlighted by the Old Testament figure of Job who is struck down with pestilence. This illustration of how the Lord might visit the righteous with affliction is a perfect example to test believers' faith. More than that, pain was broadly viewed as the inevitable state of fallen man, whose body had been corrupted by the Original Sin.¹²⁷ Moreover, it is also interesting to note that midwives were licensed by ecclesiastics and not by medical corporations, for moral values were more important than skills in this matter. Besides, hospitals themselves were the products of Jewish and Christian ideas of charity. Indeed, the first hospitals arose thanks to Christian charity and were the first to take care of those in need. In fact, they catered for many different groups: the sick, the old, the poor and the strangers. However, if hospitals were born from Christian initiative, medicine and particularly surgeon specialists took advantage of these places to enforce their power and knowledge.

¹²⁵ www.sciencemuseum.org.uk/broughttolife/themes/belief

¹²⁶ Six miracles of Christ can be seen on an ivory diptych of about AD 475 from Rome. The miracle of healing reported in the Gospels served as a model for the Christian physician and encouraged those whom human aid failed to place their faith in Christ and his saints' Victoria and Albert Museum, Cambridge Illustrated History p72 and The Holy Bible, King James Version, Matthew 11:5 and The Holy Bible, King James Version, John 9

¹²⁷ Porter, Roy. (1996), chapter 3, p82

b. From Religious to Scientific Authority

It is interesting to note that when people fall ill they tend to ask themselves questions such as ‘Why am I ill?’ and ‘How do I get better?’ Throughout history, the answers to these questions have been sought and provided through a complex mixture of natural, spiritual, moral and scientific meanings. It is also worth noticing that people rarely understood illness through just one of these components, which may explain the complicated relationship between faith and science.

In the Middle Ages Medicine and Religion shared a common orientation—that of making a whole entity.¹²⁸ Indeed, the etymology of ‘holiness’ and ‘healing’ both come from the same root meaning ‘wholeness’. The words ‘salvation’ and ‘salubrity’ also had the same origins as such word as ‘cure’, ‘care’ and ‘charity’ which come from the Latin ‘caritas’. Moreover medicine was increasingly complementing religion as the source of meanings for explaining the existence of human beings and other creatures. For instance, more and more people were being born in the presence of a medical attendant and were more and more likely to die with the ministrations of a physician rather than a priest.¹²⁹

Moreover, the humanist revival of the eighteenth century gradually saw science and religion cohabit. Indeed the Catholic cult of the sacred was contemporaneous with William Harvey’s *De Motu Cordis*, as explained by Roy Porter.¹³⁰ As such the balance between Church and medical institutions was slowly established. One aimed to cure the body whereas the other tried to cure the soul.¹³¹ Besides, Western medicine developed within dominant

¹²⁸ idem, p84

¹²⁹ L.I Conrad, M. Neve, V. Nutton and R Porter, *The Western Medical Tradition, 800 BC-1800 AD* (Cambridge University Press, 1995), pp474-475.

¹³⁰ *Flesh in the Age of Reason* Roy Porter

¹³¹ Porter Roy (eds). *The Cambridge Illustrated History of Medicine*. 1996, p84.

systems established by the Church and it is interesting to note that until quite recently medicine remained a subaltern profession, less prestigious than the cloth.

Adding to that is the idea that Judeo-Christianity proclaims a dualistic cosmology that ennobles the soul or mind whereas the flesh is considered to be weak and corruptible, as depicted in the Genesis with the story of Adam and Eve.¹³² However, even if the Church's view of diseases and illnesses differed from its medical equivalent, Christianity has been a religion of healing, as shown by the many miracles made by Jesus and other saints. Yet, medical men wanted to go beyond the borders imposed by the Church to preserve the body and its sanctity. This is why Western medicine started to develop around the body and its workings, going deeper and deeper into the exploration of the human physiology and organs.

2. Dissection

Dissection had long been prohibited in the history of medicine. In fact, it had been very controversial from ancient times and was a topic fraught with controversy and popular superstition in Mary Shelley's day. Indeed, at this time people were afraid of dissections and rejected them. There was a marked difference between science and religion. As a matter of fact, religious beliefs prohibited the cutting and exploration of human bodies, while Men of Science like William Harvey considered dissection as being primordial for the understanding of disease and the functioning of the body.

a. The Influence of France and the "Paris Manner"

"Gentlemen may have the opportunity of learning the Art of Dissection during the whole winter season in the same manner as at Paris." This was what William Hunter promised in an

¹³²Porter Roy (1996), p85.

advertisement of September 16, 1746 in *The London Evening Post* when he started to promote a series of anatomical lectures. Evidence that Hunter's 1746 course was an innovation can be found in a letter published in the *Westminster Journal* and dated on December 19, 1746.¹³³ In this anonymous letter, the author advocated the need for more body supplies dedicated to anatomical education. He then described the great difficulties William Hunter encountered when he started to teach anatomy, and his desire to introduce "the manner of dissecting as practised in Paris." The Paris Manner of dissecting is mentioned again in the letter, and this term refers to a specifically French way of teaching surgery and anatomy. In fact, Paris was known for providing each student in anatomy with one entire body, and with the teacher in anatomy inspecting the work of his students from time to time. The influence of Paris and France at large has already been mentioned in his work, but its importance was all the more significant in matters of anatomy and dissections.

It is indeed very interesting to note that Paris was famous enough for his educational structure in medicine- and more precisely in surgery- to be alluded to in a newspaper. That is why William Hunter associated Paris with dissection. Moreover, it was an advantageous place to study anatomy, mostly because large-scale anatomical dissections were tolerated in Paris decades before it was actually allowed in London from 1746. Indeed, anatomical instruction was widely developed in Paris before the Revolution and courses were held in several schools, namely the School of Medicine, the School of Surgery, the Jardin du Roi, the College Royal and major hospitals alongside with private lessons given in a variety of places. Besides, what was really important and new was that every student had a chance to learn

¹³³ Gelfand, Toby. The "Paris Manner" of dissection: student anatomical dissection in early eighteenth-century in Paris', *Bulletin of Medicine* 46 (1972), p. 101.

anatomy by dissecting a corpse on their own. This point is a huge part of what was called “The Paris Manner” by medical men and the population.¹³⁴

Indeed, In France, a permission to perform surgical operations, dissections and anatomical demonstration with complete freedom was granted from 1673. Besides, “subject suitable for this purpose” were largely provided for students eager to discover the human bodies and its mysteries and functioning.¹³⁵ Most of the corpses came from executed criminals or murdered people in the streets of Paris. These ones were given to the Schools of Surgery and Anatomy, even if a significant number of cadavers belonged to the hospitals, which hardly shared them with other scientists.

Besides, it is also worth highlighting that also in France, there was a separation of physicians from surgeons. Indeed, public courses in anatomy and surgery held by the Faculty of Medicine were no concerned with the training of physicians-to-be in dissection. Indeed, the art of opening dead bodies to look for changes in tissues revealing diseases or the normal functioning of a human body was a mechanical art best left to surgeons. In fact, surgeons were even accused of spreading the idea that examination with the eyes and hands was absolutely necessary in order to make a reliable diagnosis and to prescribe the best treatment.¹³⁶ However, physicians were absolutely opposed to this idea and believed that they did not need such sensory clues to make the proper diagnosis. After all, they considered themselves superior, thanks to their university training based on book learning and their knowledge of ancient treaties in Greek or in Latin. They were educated men whereas surgeons were only craftsmen. As such, it was absolutely impossible for them to accept the idea that surgeons could be able to reflect deeply on medical matters.

¹³⁴ Gelfand, Toby. “The “Paris Manner” of dissection.” (1972), p 104

¹³⁵ Gelfand, Toby. “The “Paris Manner” of dissection” (1972), p 105

¹³⁶ Gelfand, Toby. “The “Paris Manner” of dissection” (1972), p 109

Yet, reforms were coming and surgery slowly but surely rose in status. These reforms influenced surgeons and physicians in Scotland and then in England, with great physicians and surgeons such as William Cheselden and William Hunter spreading new idea and new way of understanding the body. Contrary to the situation in England, human dissection was performed by surgical students in Paris by the mid-1720s. Courses were held and dissection rooms were provided for health officers, but cadavers were rationed to one per week and had to be quickly returned for burial.¹³⁷

Also, one can wonder why Paris was attracting so many foreign students. What does France had that appeared so attractive to foreign students? The answer lays in the availability of a large scale of schools. More than that, dissections were largely available, mostly in private schools of anatomy and surgery, which were later developed in London. Also, the time spent studying in Paris was usually rather short, and did not exceed a few months. Students gained learning experience and were admitted to classes they chose on a fee basis. Besides, there were several advantages to study in private schools rather than public ones or hospitals. First, in private schools, and contrary to hospitals, time was not lost in patient care and the instruction given was methodical, concentrated and individual and this without the distraction a hospital could have. Moreover, private schools had more cadavers than public schools, mostly because the corpses were largely obtained illegally.¹³⁸ Indeed, private schools were less subject to regulation and inspection than were public courses and hospitals, which allowed them to be more attractive for students eager to train on real and fresh human bodies.

All these points tend to explain why Hunter used the phrase “Paris Manner” in order to attract British students in surgery and anatomy in his advertisement for private lessons. He would have himself also studied in Paris, just like many British medical men of his time that

¹³⁷ Gelfand, Toby. (1972), p. 114.

¹³⁸ Gelfand, Toby. “The “Paris Manner” of dissection” (1972), pp. 116-117

were interested in surgery and anatomy. Moreover, the admiration of British people for Paris anatomy and surgery was real. This can be seen with the many translations of French surgical and anatomical treatises. Often, translators explained their choice in the preface and showed their interest and admiration of French medical men. This can be seen in the translator's preface of Joseph de La Charrière, a French manufacturer of surgical instruments. Indeed, he argued that "they [the French] are deservedly esteemed the best mechanics in the world, they do undoubtedly also excel in the operative part of surgery... witness several very good Treatises of chirurgical operations."¹³⁹

Interestingly enough, the reputation of Paris-trained surgeons was so high that some Englishmen have been known to have disappeared from town for about three months while the false rumour was spread that they were studying in Paris.¹⁴⁰

Yet, even if Paris had a strong influence over foreign studies and research in surgery, there was also a negative counterpart. Indeed, not all Paris medical and surgical students performed such dissections as described above. In fact, lectures persisted as the primary method of teaching anatomy in public courses and many of the hospital and private courses. Indeed, the "Paris Manner" of dissection, whether it be in Paris or after 1746 in London, was a privilege purchased first by the best and wealthiest students, it was not really a routine practice for every medical student. However, the influence of this teaching and of France cannot be denied, and French methods were soon adopted and developed in England and Scotland, which also led to serious issues for the supply of body, issue that led to dark trade such as body-snatching or even murders.

¹³⁹ De La Charrière, *A Treatise of the operations of surgery*. 1712. London, translator's preface, pp. i-iii

¹⁴⁰ Gelfand, Toby. *The "Paris Manner" of dissection* (1972), p 125

b. The Problem of Dissection

It appears that dissection of human cadavers was very controversial from ancient times, and was a topic fraught with controversy and popular superstitions until Mary Shelley's days.¹⁴¹ In fact, the taboo against desecrating the bodies of the dead goes back many centuries, for it was prohibited by both ancient Greek and Roman religions. Besides, this strongly anchored taboo continued into the post-Classical era. This can be explained by the fact that Christian doctrine promises the resurrection of the body, which many thought to be impossible if a body were dismembered. In 1163, The Church announced the prohibition of human dissection. This statement decided during The Council of Tours was made in the hope of curtailing the practice of dismembering and boiling the remains of Crusaders killed in battle before their shipment home and to prevent any desecration of the body.¹⁴²

Indeed, the sanctity of the body is what led the Vatican to regulate the handling of corpses. Yet, in 1482 Pope Sixtus IV claimed that with the condition that the cadaver came from an executed criminal and was ultimately given a Christian burial, there was no objection to dissection.¹⁴³ As the matter of fact, the taboo against dissecting human cadavers continued well past the Middle-Ages.

Andrea Vesalius, for instance, one of the founders of modern anatomy, received death sentence under the Inquisition for his dissections in 1564. His experience, gained by performing dissections himself rather than relying on assistants, led him to question classical medical authorities. In fact he recognized that leading medical figures such as Galen who had been forbidden by Greek and Roman religious law from studying human

¹⁴¹ Shelley, Mary, a 19th century English writer and author of *Frankenstein, The Modern Prometheus*.

¹⁴² Contexts Science Biology -Anatomy Dissection <http://knarf.english.upenn.edu/Contexts/dissect.html>

¹⁴³ Porter, Roy. *Blood and Guts* (2003), p54.

anatomy directly supported their work by drawing analogies from animal anatomy and by doing guesswork. In 1543 he published his masterpiece, *De corporis humani fabrica*, in seven volumes, providing the first accurate drawings of human anatomy. The Reformation freed physicians in Protestant countries from the authority of the Catholic Church, and in 1565, the London's Royal College of Physicians was given the authority to dissect human cadavers.

However, as human dissections became more and more numerous, the need for a source of cadavers became more pressing. Criminals and the unclaimed poor often satisfied the demand. Indeed, in the eighteenth century English surgeons and anatomists often used the bodies of condemned criminals for medical research. The result was that many surgeons turned to the practice of grave-robbing and body snatching, which were two controversial topics of the time. This fear of being anatomised was very much present during the eighteenth century as can be shown with the declaration of Matt of the Mint, in John Gay's *Beggar's Opera* in 1728. Indeed, Matt explains the fate of his brother, referring to the anatomy theatres as 'otamies': 'Poor brother Tom had an accident this time twelve-month, and so clever a made fellow he was, that I could not save him from those flaying rascals the surgeons; and now, poor man, he is among the otamies at Surgeon's Hall.'¹⁴⁴ This quote highlights the fact that not only many people considered anatomization or dissection as being worse than the hanging itself but also that surgeons' thirst for dissecting human cadavers was not understood.

As a matter of fact, this practice was meant both to supply the surgeons with cadavers and to serve as a disincentive for criminals who feared the profanation of their remains. As such it can be asserted that the Church was very much present in people's lives and moral beliefs in the eighteenth and nineteenth centuries. It is indeed the Church's dogmas

¹⁴⁴ Gay, John. *Beggar's Opera*. 1728. Orberry's Edition: London. 1818. Act II, scene 1, p17.

that forged the reluctance that prevailed against dissections, even if this one was made to understand the body and disease workings better. Moreover, the crowds would many times prove its disapproval at public executions by rioting in order to prevent surgeons from claiming the corpses. One of these incidents is described by Samuel Richardson in 1740: “As soon as the poor creatures were half-dead, I was much surprised, before such a number of peace-officers, to see the populace fall to haling and pulling the carcasses with so much earnestness, as to occasion several warm rencounters, and broken heads. These, I was told, were the friends of the person executed, or such as, for the sake of tumult, chose to appear so, and some persons sent by private surgeons to obtain bodies for dissection. The contests between these were fierce and bloody, and frightful to look at.”¹⁴⁵

This depiction of such scenes is really an embodiment of the paradoxes of the time. On the one hand the people and clergy wanted to protect their faith and to stick to their values whereas on the other hand a minority of educated anatomists and surgeons longed for discovering the many secrets of the human body. However the presence of some kind of soul has never been determined one way or the other as a source of animation but the medical teacher Herman Boerhaave maintained- as explained by Roy Porter-that the secret of life was beyond the remit of medicine.¹⁴⁶ To be more precise, it can be said that the Christian immortal soul was best left to priests and metaphysicians. Indeed, medicine should study secondary not primary causes, the ‘how’, not the ‘why’ and ‘wherefore’ of the workings of the body.

¹⁴⁵ Richardson Samuel, *Familiar Letters on Important Occasions*. 1928, p219

¹⁴⁶ Porter, Roy. *Blood and Guts* (2003), p69

3. Body Snatching

The history of British body-snatching dates back to the introduction of human dissection into the study of anatomy and surgery during the fourteenth century. In 1541, Henry VIII granted the Company of Barbers and Surgeons the exclusive right to dissect four executed persons per year. Later, Elizabeth I acknowledged the right of physicians to perform dissections, which highlighted the privileged link between surgeons and dissection. Indeed, Charles II increased Henry VIII's original grant to six in 1663. In 1752 this practice was expanded to include the body of any criminal executed in London and Middlesex. Unfortunately, this proved to be insufficient.

Besides, in the seventeenth and nineteenth centuries, there was a development of anatomical knowledge and human dissections were more and more recognized and accepted as being essential to medical and surgical training. As a consequence to this development the need of bodies became so important that the corpse legally obtained could not meet the demand, which led to the rise of body-snatching and resurrectionists' dark trade.¹⁴⁷ In fact, body snatching can be seen as both a cause and product of frictions that existed between surgeons and the public in the eighteenth century England. More precisely, resurrectionists' trade can be seen as a peculiar example of what can happen when a profession and a society find themselves at cross-purposes during a period of change, whether it is social change or rapid scientific advances.¹⁴⁸

¹⁴⁷ Frank Julia Bess, "Body Snatching: A Grave Medical Problem." The Yale Journal of Biology and Medicine 49 (1976), p 399.

¹⁴⁸ Ulry Regis, "Body Snatchers: The Hidden Side of the History of Anatomy". J Int Soc Plastination, Vol 14, n°2: 6-9, 1999, pp. 6-9

a. A Dark British Trade

Using the body of a deceased person in order to see what happens inside human organs and tissues is fundamental for anatomical studies, and as long as the Barber-Surgeons Company and the Royal College of Physicians could maintain their monopoly on dissection in London everything was under control. However, by the beginning of the eighteenth century, this monopoly was waning. This was linked to the rise of hospitals such as St Thomas and St Bartholomew or to private anatomy schools run by former hospital lecturers. With this new medical market place, the demand for anatomical subjects grew rapidly and it opened up the way to the development of underground organizations that used to dig up graves to steal bodies. Indeed, anatomy schools attracted a large number of students from everywhere in England, Scotland and the rest of Europe; mostly because the reputation of British teachers improved a lot during the nineteenth century.

As a consequence to this new fame, the pressing demand for human material exceeded by far the supply of dead bodies available, giving rise to an illicit trade of bodies. This is how some of the most famous anatomists and surgeons, such as the Hunter Brothers, received bodies from grave robbers and body snatchers. In 1774, William Hunter stated that “the body was procured before any sensible putrefaction had begun.”¹⁴⁹ It is not necessary to read between the lines to understand what Hunter is talking about. The lure for money what was led body-snatchers to steal corpses- or even murder people.

The problem with anatomical practice on human corpses was that dissection was considered as being a punishment and not so much a practice to improve anatomical knowledge. A proof of that point can be found in the law. In fact, in 1752, the law for the dissection of murderers was made statutory by George II because: “The crime of murder has

¹⁴⁹ Author’s italic. As quoted in Ulry Regis, *Body Snatchers: The Hidden Side of the History of Anatomy*. *J Int Soc Plastination*, Vol 14, n°2: 6-9, 1999, p 9

been more frequently perpetrated than formerly... and... it is thereby become necessary that some further terror and peculiar infamy be added to the punishment of death.”¹⁵⁰ As a consequence to that, the idea of dissecting human beings was even more repugnant to the public who absolutely wanted to protect other potential sources of cadavers from these kinds of mutilations.

Yet, by 1760, it had become usual for students in medicine to dissect for themselves, partly because it was mandatory for those applying for licenses from the Royal College of Surgeons to attend two full courses of anatomy with dissections in London. This is how the supply of cadavers became insufficient. Moreover, in order to illustrate that point was the growing number of students. Indeed, there were over 200 medical students in London in 1793 and more than 1000 in 1823, which clearly illustrate the rising interest of scientists for anatomy and surgery; a point that also highlights the rising status of surgery and surgeons who were more and more trained and more and more numerous.

Besides, not only students, but also licensed surgeons like to practice at least once on a cadaver before approaching a difficult case. As a consequence, surgeons and students were competing for less than a hundred corpses legally available each year.¹⁵¹ This lack of supply combined with a flaw in British laws led to a growth of the resurrection trade. Indeed, in English laws, stealing a shroud or a coffin was considered a crime against the property of a dead man's heir and was subject to harsh punishment. Yet, a man did not possess his own body and could consequently not be considered as a property, nor was the theft of a body a crime, unless for the purpose of witchcraft. These facts made body snatching very difficult to punish, and it is not surprising that grave-robbing became common during the late eighteenth and nineteenth centuries.

¹⁵⁰ Frank Julia Bess, *Body Snatching* (1976), p 400

¹⁵¹ Gutmacher H.F. “Bootlegging bodies: A history of body snatching”. *Bull. Soc. Med. History* 4 1935, pp. 353-412.

At first, body snatchers were mostly amateurs, more precisely medical students or hospital porters who stole for their own use or their professor's. In parallel with these robbers, a new class of men known as resurrectionists appeared during the eighteenth and nineteenth centuries. At the beginning, they were cemetery watchmen helped by a few desperate men in need for money but, from the early nineteenth century, several well-organized gangs had appeared in London and other big cities. In 1830-1831, no less than seven gangs were arrested in London. At the time though, grave robbers were estimated to be about 200 in London.¹⁵²

One of the most famous gatherings of body-snatchers was the London Borough Gang, which operated from 1802 to 1825. This group was led by a former porter at Guy's Hospital named Ben Crouch. For many years, the Borough Gang supplied several of London's most important anatomy schools, including that of Sir Astley Cooper. The surgeon was so dependent on Crouch and his men that he did not hesitate to exert his influence in order to keep them out of jail. In return for this protection, Crouch and the rest of the gang provided a generous amount of fresh corpses. It is interesting to see how the body-snatchers were working. Indeed, during a typical day of work, a member of the gang or his wife would spend the day in graveyards, waiting for a funeral. Once they eventually found one, they might have joined the mourners in order to see the exact location of the grave and to know if there were any traps placed by the family. Indeed, all sorts of infernal machines were invented and bought by anxious families who wanted to protect their dead.¹⁵³ In fact, families of the deceased would trap the coffin so that acid would destroy the body if the coffin was to be opened or booby-trapped the coffin to make it explode if necessary.

¹⁵² Ulry Regis, "Body Snatchers: The Hidden Side of the History of Anatomy". *J Int Soc Plastination*, Vol 14, n°2: 6-9, 1999, pp. 7-8.

¹⁵³ Bailey, J.B. *The Diary of a Resurrectionist, 1812-12, to which are Added an Account of the Resurrection Men and a Short History of the Passing of the Anatomy Act*" Swan Sonnenschein, London, 1896, pp. 79-80.

One member of the gang, Joseph Naples, kept a diary in 1811 in which he described his work and the price he got for the cadavers he delivered. These words can be found in a typical entry: “At 2am. Got up, the Party went to Harps, got 4 adults and 1 small, took 4 to St Thomas. Came home, went to Mr Wilson and Brookes. Dan got paid £8/8/0 from Mr Wilson. I received £9/9/0 from Mr Brookes. Came over to the borough, sold small for £1/10. Received £4/4/0 for adult. At home all night.”¹⁵⁴ These were the standard prices, even though there were huge variations. For instance, John Hunter paid no less than £500 to have the body of a giant named O’Bryenne, whose 8-foot-skeleton is still in Hunter’s anatomical museum. The fact that bodies was so easily stolen and sold really emphasizes the flaw of British law. In fact, more than laws, the supreme fear of body snatchers was the public hostility. They found their job increasingly difficult and dangerous, for people were trying their best to protect their lost loved ones.

Indeed, a resurrectionist caught by the police was not really punished, and many a burglar escaped arrest by claiming that they were “only body snatchers.”¹⁵⁵ However, if a resurrectionist fell into the hands of the crowd, this one could be in serious trouble, for the mob would not hesitate to kill body-snatchers during the resurrection era. Usually, the victims were amateurs, namely medical students and porters, rather than professionals. As a result, body-snatchers and people involved in the death-trade increased the price of the bodies they stole. Some of the most effective grave robbers were able to dig up ten bodies in one night! It was for them a way to earn a significant amount of money.

It is also interesting to note that dead bodies were exhumed without distinction of class or status. For instance, the famous English writer Lawrence Sterne died at the end of the seventeenth century. Shortly after, one of his close relations recognized him in a dissecting

¹⁵⁴ Bailey, J.B (1896), p.147.

¹⁵⁵ Frank, Julia Bess. “Body Snatching.”1976, p 403.

room. This example was far from being an isolated case and most of the time, famous dead bodies could be sold at a higher price, which proved to be highly profitable for resurrectionists.

Moreover, in the eighteenth century, dissections were conducted not only for medical students, but also sometimes for the public who enjoyed watching human dissection. However, when the public started to be outraged by body-snatching, dissecting rooms were burnt down in all parts of Great-Britain. Yet, it did not stop grave-robbers from doing their dark activity, and the horror went increasing. Indeed, in the early nineteenth century, William Burke and William Hare were the actors of the “blackest chapter in the black annals of body snatching.”¹⁵⁶ They murdered at least sixteen people to supply anatomists with fresh corpses. In fact, William Hare owned a flophouse and Burke rented his back room. One day, one of the tramps for whom Hare provided lodging died. Because Hare claimed the man owed him four pounds, he enlisted Burke to help him sell the body in order to cancel the debt. They eventually sold the body to Robert Knox, who led a private anatomy school and paid the enormous sum of £7/10 for it. Shortly after this macabre event, another opportunity presented itself. In fact, a man who lived in Hare’s lodging started to be sick, and Burke and Hare lost no time in making him suffocate with a pillow before selling the corpse to Knox. This time they sold the body for ten pounds and Knox noticed politely that it was good to have a specimen “so fresh”.¹⁵⁷

This comment must have encouraged the two men to carry on their dark trade. Indeed, it is from this moment that Burke and Hare began practicing murder on a grand scale. Their method was quick and always followed the same scheme. They would invite home a likely victim for a drink and, once drunk enough; they would smother him or her with a pillow. The

¹⁵⁶ MacGegor G. *The History of Burke and Hare and of Resurrectionist Times. A Fragment from the Criminal Annals of Scotland.* Glasgow: Thomas D. Morrison, 1884.

¹⁵⁷ Frank Julia Bess, *Body Snatching* (1976), p 404.

last of these murders was the one of Mrs Docherty, done on Halloween night 1827. Burke presented himself as a distant relative and invited the lady home, where another family was living; the Grays. These ones saw Mrs Docherty, who proved to be a happy drinker and as such, was difficult to get drunk and dizzy. It took them so much time to kill her that they did not have time to resell the corpse before the next morning. They decided to hide the body but were discovered and denounced by the Gray family. This is how Burke was captured.¹⁵⁸ During his time in jail, Burke would have describe the murders in those terms: “After they ceased crying and making resistance, we left them to die of themselves, but their bodies would often move afterwards, and for some time, they would heave long breathing before life went out.”¹⁵⁹ William Burke was hanged on January 28, 1829 in a presence of a cheering crowd of about 30,000 people. His body was then dissected by Alexander Monro who gave hundreds of lectures with his body as a support. After this trial, murders for anatomy were known as Burking and it is only later that the word acquired its present definition of murder by suffocation. His companion, on the contrary, escaped the gallows and return to Ireland, his native country.

In fact, the lack of bodies for dissection for anatomists and surgeons was the cause for body snatching. There was an inadequacy between the growing demand and the impossibility to obtain corpse legally. Human bodies had a scientific value for surgeons and a pecuniary value for resurrectionists. Besides, the fact that the bodies to be dissected were obtained thanks to criminal executed made dissections very despicable for people, who saw that more like a punishment than an asset for scientific discoveries and surgical improvement. The Anatomy Act of 1832 was the beginning of the end of body snatching, for it provided an

¹⁵⁸ Idem, p. 405.

¹⁵⁹ ¹⁵⁹ Ulry Regis, *Body Snatchers* (1999), p 8.

adequate supply of bodies for the teaching of anatomy, which gradually put an end to the dark trade of death.

b. Body Snatching, Surgery and Literature in the late 18th- 19th centuries

Earlier in this work, we have seen the change and development of surgery within the medical world, but it is also interesting to have an idea of the perception of medicine and surgery by lay people in the late eighteenth and nineteenth centuries.

In order to understand people's beliefs on subjects such as surgery, science and dissection, the prism of literature is very telling. Indeed, it very often reflects the fears, taboos and changes that occurred within a specific period of time. There are three masterpieces of the nineteenth century that highlight these points and truly depict people's point of view, hopes and fears. This is particularly true when looking at subjects such as surgery, medical reforms, the thirst for new knowledge and the scare that prevailed around dissection and the exploration of the human body. These three stories are *Frankenstein*, written by Mary Shelley; *Middlemarch*, which was written by George Elliot, and the short story written by R.L. Stevenson that is entitled *The Body Snatcher*.

An analysis of these three stories can give the reader a hint of how surgery, medicine and dissection were perceived at the time of the writings of these novels. What is really striking is that despite the similarities, the evolution in the way of thinking can be seen through a close reading and understanding of these writings.

First of all, it is interesting to focus on the first story written in 1818, in a time of tremendous change within the profession of surgeon and the study of the human body. In fact, in *Frankenstein*, Mary Shelley shows how knowledge can prove to be dangerous for

humanity.¹⁶⁰ This point really stresses out the lack of understanding of the necessity of doing anatomical research from the people's point of view. Indeed, if the use of anatomical knowledge seemed a bit uncertain for surgeons themselves, it was all the more perturbing for lay people, who couldn't understand why surgeons were interested in the cutting and exploration of dead tissues.

In this story, Doctor Victor Frankenstein wants to push scientific power to the extreme, by creating life. This thirst of knowledge proved to be highly destructive, for the story illustrates the fact that no man can do God's work without paying the consequence of what is considered the ultimate proof of vanity. This is how a monster is created. The question, though, is to know who the true freak is: Is the monster the creature or the creator?

At first, one might think that the creature is what can be considered as a true monster, but then it appears that the doctor is the most monstrous, because he is the one who played with life and death. In fact, there is a strong criticism of doctors' thirst for new medical knowledge, and in this story, Victor Frankenstein wants to create life in order to challenge God's power. He pushes science to its extreme limits in order to serve his own purpose and he is punished for that. Indeed, dissection is put into question here. As a matter of fact, doctor Frankenstein takes several pieces of several dead bodies and sews them to create a huge humanoid creature. The price for having played the role of God is dramatic.

Indeed, with this new form of life he is going to destroy his life and every person he loves, which really put the use of dissection into question. Is dissection necessary in surgery or is it mere macabre curiosity? In Mary Shelley's work, one can understand that the status of dissection and its place within the scientific world is not only difficult to understand for medical men but for lay people too. In fact, in this story and in *The Body Snatcher*, the

¹⁶⁰ Shelley, Mary. *Frankenstein* (1818) <http://www.planetebook.com/free-ebooks/frankenstein.pdf>

mystery surrounding the practice of surgery is what led writers to fantasize on the dark aspects of surgery. These mysteries were also what nourished people's misunderstanding and fear of surgeons. Besides, this story also embodies the dream of creating life from death or to reverse death prospect. This is a fantasy that will become true- to some extent- in later year of the history of surgery. Moreover, the fear generated by the surgical art was about to evolve, partly thanks to the various medical reforms that occurred during the nineteenth century.

This is particularly true when reading George Eliot's masterpiece, *Middlemarch*. This novel is set in the fictitious Midlands town of Middlemarch from 1829 to 1832, and it is composed of several distinct stories and a large cast of characters. The novel also emphasizes several distinct themes such as the status of women, the nature of marriage, but also idealism, religion, political reform and education, all that being linked to the evolution of society, and more precisely of medicine. Within the story, contemporary medical science is analysed and the reaction of a settled community facing the prospect of unwelcome change is also observed. One of the main characters, Tertius Lydgate, is an idealistic, talented but naïve young doctor who has new ideas about medicine and sanitation.¹⁶¹ He is the source of professional jealousy among other Middlemarch medical men, mostly because he wants to reform their out-dated treatments.

In fact, his character perfectly reflects the way of thinking linked to the Enlightenment, with humanist ideas and the desire to help others and make them suffer less. He is also motivated by the desire to reform medical practice. It is interesting to note that it is the doctor who symbolizes change and reform in this novel, which clearly highlight the evolution of the place of surgery in English society. Indeed, a parallel can be drawn between this novel and the medical reforms of the time, which were meant to improve people's living condition- which led to an improvement of their health through better sanitation and housing.

¹⁶¹ Eliot George, *Middlemarch*. 1994. Penguin Books: London.

The Body Snatcher is a tale of murder and haunting, set in a context of surgical turmoil. Its title was originally plural, since the story concerns two grave-robbers, Edinburgh medical students who run a dissecting room for their master, a thinly disguised Dr Robert Knox, the 19th-century anatomist who purchased corpses from the infamous murderers William Burke and William Hare. As a matter of fact, this story is based on Burke and Hare's story and is largely influenced by the scandal of body snatching and burking that prevailed at the beginning of the nineteenth century. What is also striking in this story is the choice of a specific point of view from the writer: the murderers.

Indeed, although people during Stevenson's time would have been aware that some persons do get murdered to supply anatomists, the surprising element arises from the characters actually committing the crimes, which means that the reader is reading from their point of view, not the victims'. It really gives an insight into how they think about what they are doing, rather than the reader always having the view of how it is portrayed in society. It would in fact allow them to compare the crime from both sides, which makes this story even more interesting. Besides, the atmosphere of the burking era was still vivid in Stevenson's day. Indeed, the churchyard at Colinton where he had played as a child—his grandfather was minister there—still has a colossal parish iron mortsafe to thwart grave-robbers.

Also, Stevenson may well have heard tales from both sides of the dissecting room door. Not only had he been raised by a generation whose childhoods had been shadowed by body snatching and burking, which explains his dark description of the trade, but one of his uncles had actually trained under Knox himself. One can consequently imagine that his uncle could have told him some stories about body-snatching and how things were working in dissecting rooms. That generation was, however, passing: for Sir William Fergusson—Knox's assistant at the time of Burke and Hare—had died in London in 1877, a short time before the writing

of this short novel.¹⁶² In fact, *The Body Snatcher* is a moral tale of defective conscience deeply rooted in reality. A young woman's body was indeed recognised in Knox's dissecting room. Many like her, murder victims, were disposed of there and no questions were asked on where they came from. Stevenson consequently put the ethical aspect of surgeons at the time into question. Indeed, he did not challenge the usefulness of dissecting dead bodies, but he deeply questioned the lack of ethic of surgeons and anatomists.

As such, resurrectionists and other persons involved in body-snatching and robbing are the products of a dysfunction of surgical research. Only a large-scale legalization of bodies dedicated to dissection, not as a punishment, but to serve scientific purpose, was to be the key of the change in the perception of surgeons and surgery. There were no monsters any more, but genuine scientific men.

¹⁶² Richardson Ruth, Robert Louis Stevenson the Body Snatcher- The Lancet (2015), p 412-413.
<http://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2815%2960144-1/fulltext>

Conclusion

Consequently, it can be argued that this work has several purposes, all of them aiming to explain the causes of surgeons' change in status during the eighteenth and nineteenth centuries in Great-Britain. In order to do that, the first part of this memoire was dedicated to the educational and technological aspects of surgical education, while the second part focused more on the evolution of surgery from a social point of view. It appears that all these points could not have been treated and fully understood without the prism of the Enlightenment.

Indeed, it quickly appeared that, even if several factors caused a tremendous change in the world of surgery, the Enlightenment was omnipresent and could not be separated from other factors such as Education and the rise of humanism as much as technological advances and major surgical discoveries. The main goal of this work was to analyse deeply the evolution of surgeons' status and the ever more important role played by surgery in the medical world. The other purpose was to see in what context this change occurred and to focus on the influence of the Industrial Revolution, reforms and the Enlightenment as much as on the influence of other European countries- such as France. Yet, it is also worth noticing that despite the huge progress made in the field of surgery, the development of this medical domain did not have only good sides. In fact, the lure and fascination for surgery also lays on its dark aspect, namely body-snatching and burking, linked to dissections.

It first appears that a change in the way of thinking was necessary to observe the variations in the structure of institutions regarding health, education or medicine. All of them were linked in some ways. However, this work also managed to prove that some of these

changes finally occurred before major reforms or structural changes. This is mostly the case with the professionalization of surgery. One first notice that the professionalization of surgery occurred during a time when professionalization was affecting every kind of profession. Yet, the professionalization of medical trade and practices- and particularly surgery's- started before. One can consequently wonder if the emancipation of surgery could have been the starting point of the professionalization of other trades. In fact, it shows us that the really is way more complex than first expected. As a consequence, this work really highlights the fact that there is no linear evolution as far as change and development in science are concerned.

It is true that change brings about change. Yet, change is also influenced by the socio-economic environment of the time. All this is linked to a notion introduced by Thomas Kuhn: the idea of paradigms. A paradigm follows a specific pattern, which means that it presupposes a philosophical and theoretical framework of a scientific discipline. Within this field, theories, laws, generalization and experiments performed are formulated to support the field and define it. This is what happened in medicine and in other scientific domains in the eighteenth and nineteenth centuries. Nevertheless, it appears in this work that it was far from being simple because there is no example of science suddenly moving from one paradigm to another. In fact, most of the time, several paradigms existed at the same time- even for a short period of time- before the strongest one became the one widely accepted. A good example of that point would be the change from the humour theory of Galen to the advent of physiology and pathology.

Besides, the questions implied a reflection on both the perception of surgery- either among medical men or lay people- and the influence of technological advances and social changes. In this memoire, it appears that medicine was moribund in Oxford and Cambridge in the eighteenth century, for physicians enjoyed their privileges and relied only on books. This left enough space for surgeon and apothecaries to take more risks in order to achieve their

goal: curing the patients and becoming more and more influential. This evolution took place within a period of development in science and technology during what is known as the Enlightenment.

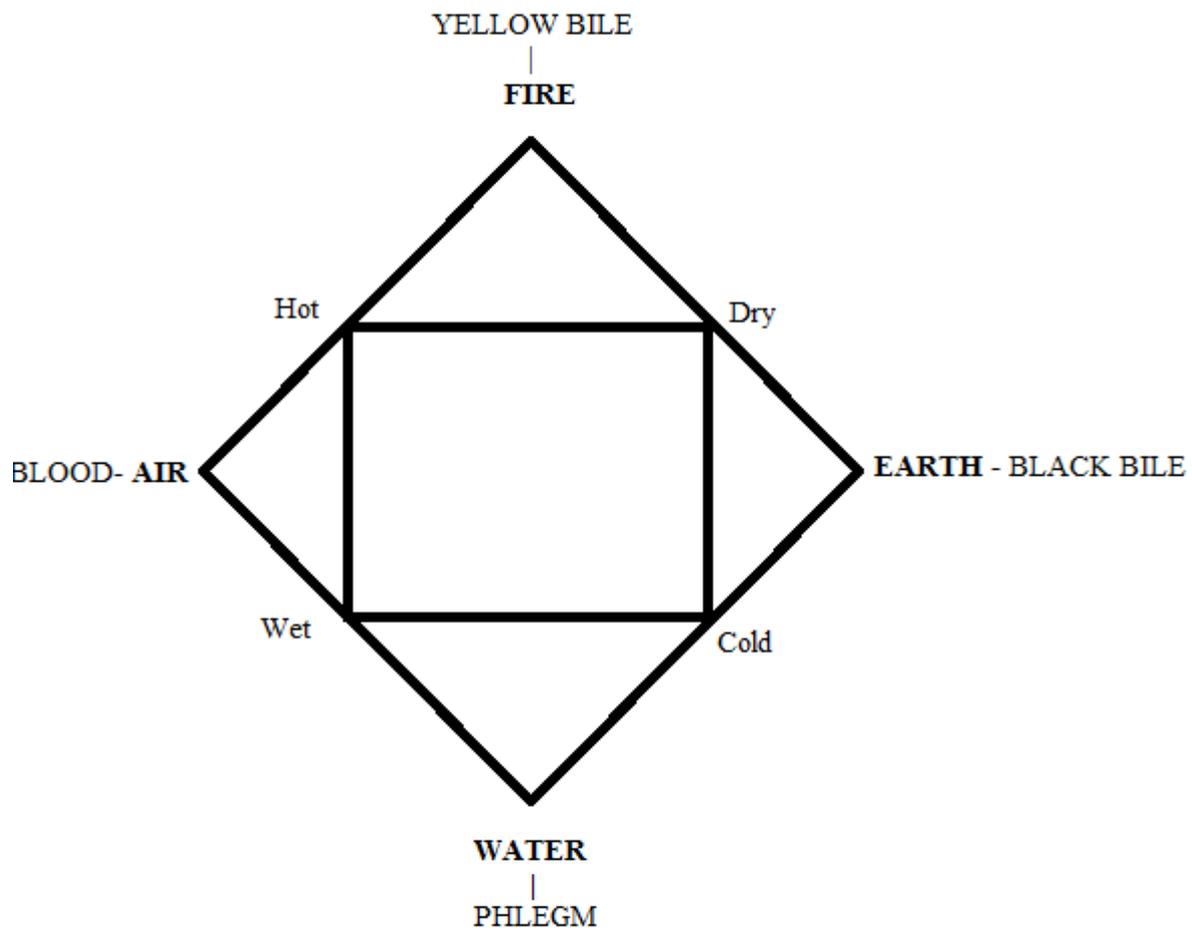
Indeed, the scientific revolution saw the creation of the first scientific societies- such as the Royal College of Physicians, the Company of Barber-Surgeons and later the Royal College of Surgeons. Besides, it was at this time that the idea of Copernicanism took place as much as the displacement of Aristotelian natural philosophy and Galen's ancient medical doctrine to the advent of anatomy, physiology and pathology. In fact, it has been observed that by the eighteenth century, scientific authority began to displace religious authority and the disciplines of alchemy and astrology lost credibility. However, the Enlightenment cannot be restricted into a specific set of dogmas, even if science came to play a leading role in Enlightenment discourse and thought.

Finally, with this work, it can be asserted that surgeons saw their rise in status becoming a reality thanks to their separation from barbers, which gave them more freedom to practice their science while physicians were being more and more negligent and stuck in ancient ways of healing. Surgeons were carried by ideas that ensued from the Enlightenment, Humanism and the reformist wave. Also, they managed to find an access to the top of the profession by becoming essential in the battlefield, in the navy. Wartime was a breeding ground for young doctors and surgeons who could practice their craft and develop new techniques such as ligature or successful amputation. The need for surgeons to have a homogeneous education was backed up with the rise of hospital and private anatomy schools. Surgeons were more and more organized within their trade and this led to the creation of what we may call a new medical paradigm based on anatomical and physiological knowledge: the rise of surgery led to the birth of general practitioners.

All the points developed in this work also raise questions linked to ethics- with dissection and its deviance- and to the consequences of such a rapid evolution. Indeed, medicine had relied on Ancient Greek knowledge and this for several centuries before almost everything started to be challenged. The fact that dark practices such as body snatching and burking occurred proved that new rules had to be established to find a new order within the medical world- with surgeons leading this new world from the advent of anaesthesia and antisepsis. Yet, one can wonder if this evolution allowed more students to be included in the medical profession or if this change proved to be exclusive. Were surgeons still coming from different social backgrounds? Where was the place of women in the new field of surgery and obstetrics? What is certain is that the development of surgery in the eighteenth century gradually took importance and put surgeons as leaders of medical research and discoveries- with the consequence of them being leaders of medicine in our contemporary world.

Annexes

Annexe 1



Annexe 1: Representation of the four humours as defined by Hippocrates, with their equally important qualities (heat, cold, dryness and moistness)

The four humours constituted a convenient framework for understanding health and diseases. Besides, they embodied a theory of temperaments, which provided a guide to human personality and susceptibility to disease. In fact, Greek humoralism was the most powerful explanatory framework of health and disease available to doctors and laymen until medicine gradually began to replace it during the 19th century.

Annexe 2

The rod of Asclepius

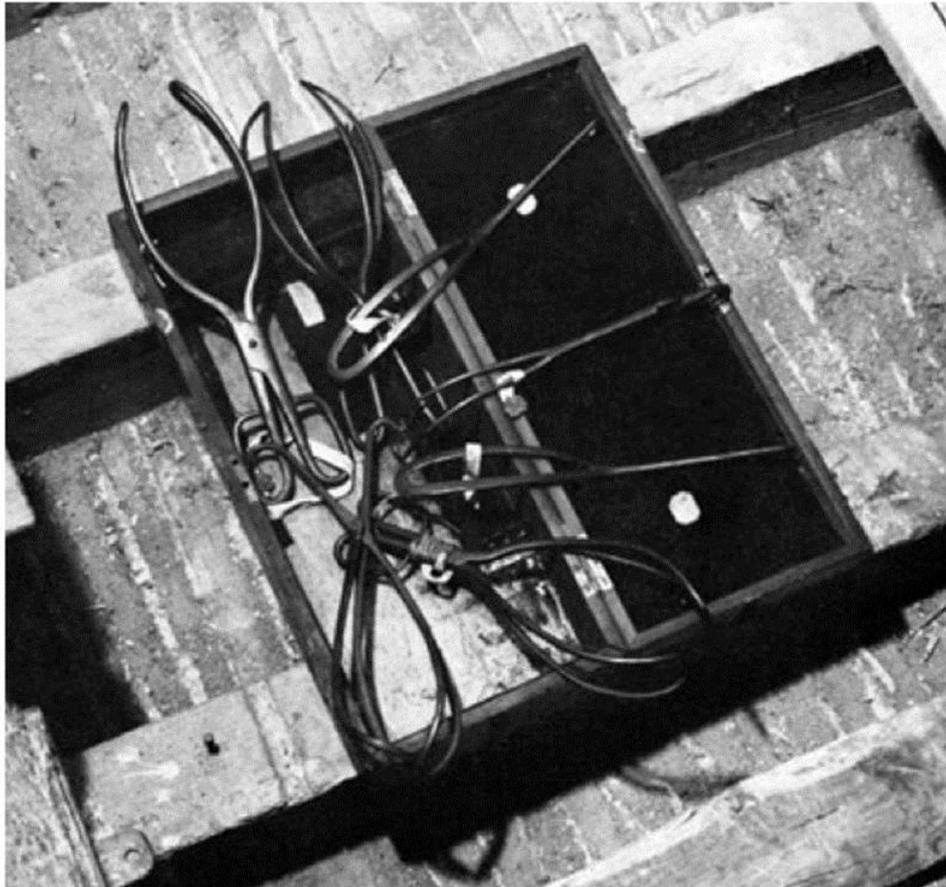


Wikipedia. Original: [CatherinMunro](#) derivative work: [Hazmat2](#) - This file was derived from: [Rod of asclepius.png](#)

The rod of Asclepius is an ancient Greek symbol that has become an internationally recognized symbol of medicine. It depicts a serpent entwined around a staff that is traditionally a knotty tree limb. This symbol is associated with the Greek demigod, Asclepius, known for his unsurpassed medical and healing powers. According to the myth he got his medical knowledge through the whispering of snakes that have the ability of periodically shedding their skin and emerging bigger, healthier and shinier than before. The rod of Asclepius is the perfect symbol of the medical professions with the staff representing authority and the snake which denotes rebirth, fertility and revitalization. Moreover, snake venom has dual properties as it can both be poisonous and have medical virtues. Therefore it embodies the dual nature of physicians and surgeons whose work involved sickness and health, life and death.

Annexe 3

First forceps of the history of obstetrics



The original Chamberlen forceps found at Woodham Mortimer, Essex (reproduced with the permission of the Royal College of Obstetricians and Gynaecologists).

Credit <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3704058/>

Annexe 4



Credit © [Science Museum](https://www.scienceandsociety.co.uk/results.asp?image=10284183&itemw=4&itemf=0001&itemstep=1&itemx=8) / Science & Society Picture Library -
<https://www.scienceandsociety.co.uk/results.asp?image=10284183&itemw=4&itemf=0001&itemstep=1&itemx=8>

Laennec's stethoscope, c1820

Made of wood and brass, this is one of the original stethoscopes belonging to the French physician Rene Laennec (1781-1826), who devised the first stethoscope in 1816. It consisted of a single hollow tube; the familiar binaural stethoscope- with rubber tubing going to both ears- was not developed until the 1850s. Laennec demonstrated the importance of the instrument in diagnosing diseases of the lungs, heart and vascular systems. Ironically, he died of tuberculosis.

Annexe 5

The Anatomy Lesson of Dr. Nicolaes Tulp (1632)

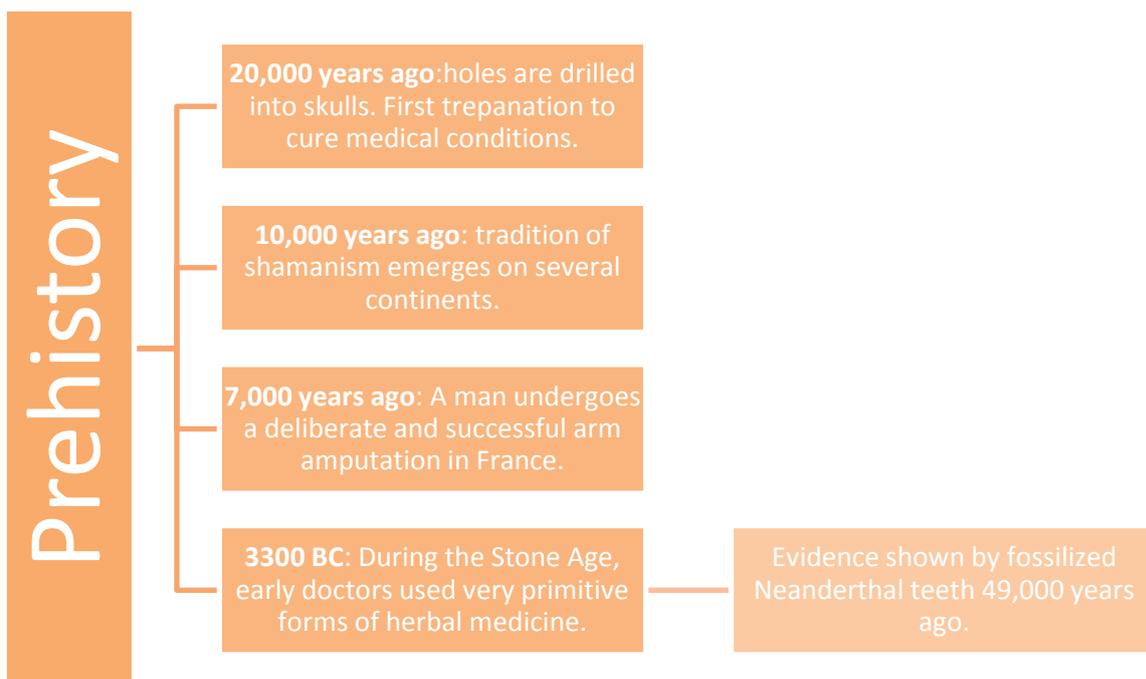


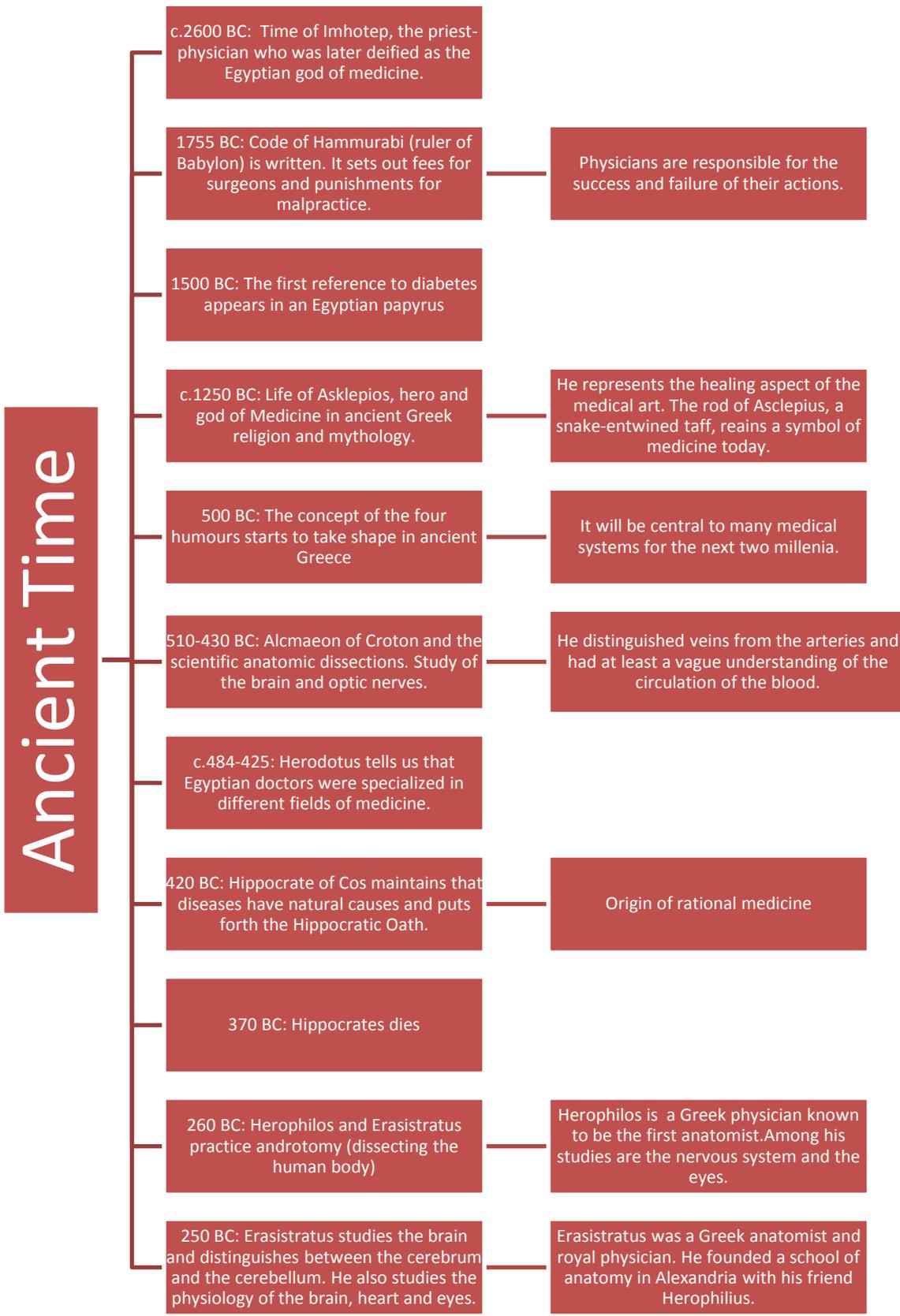
This masterpiece is an oil painting by Rembrandt. In this work, Dr. Nicolaes Tulp is pictured explaining the musculature of the arm to medical professionals. Some of the spectators are various doctors who paid commissions to be included in the painting.

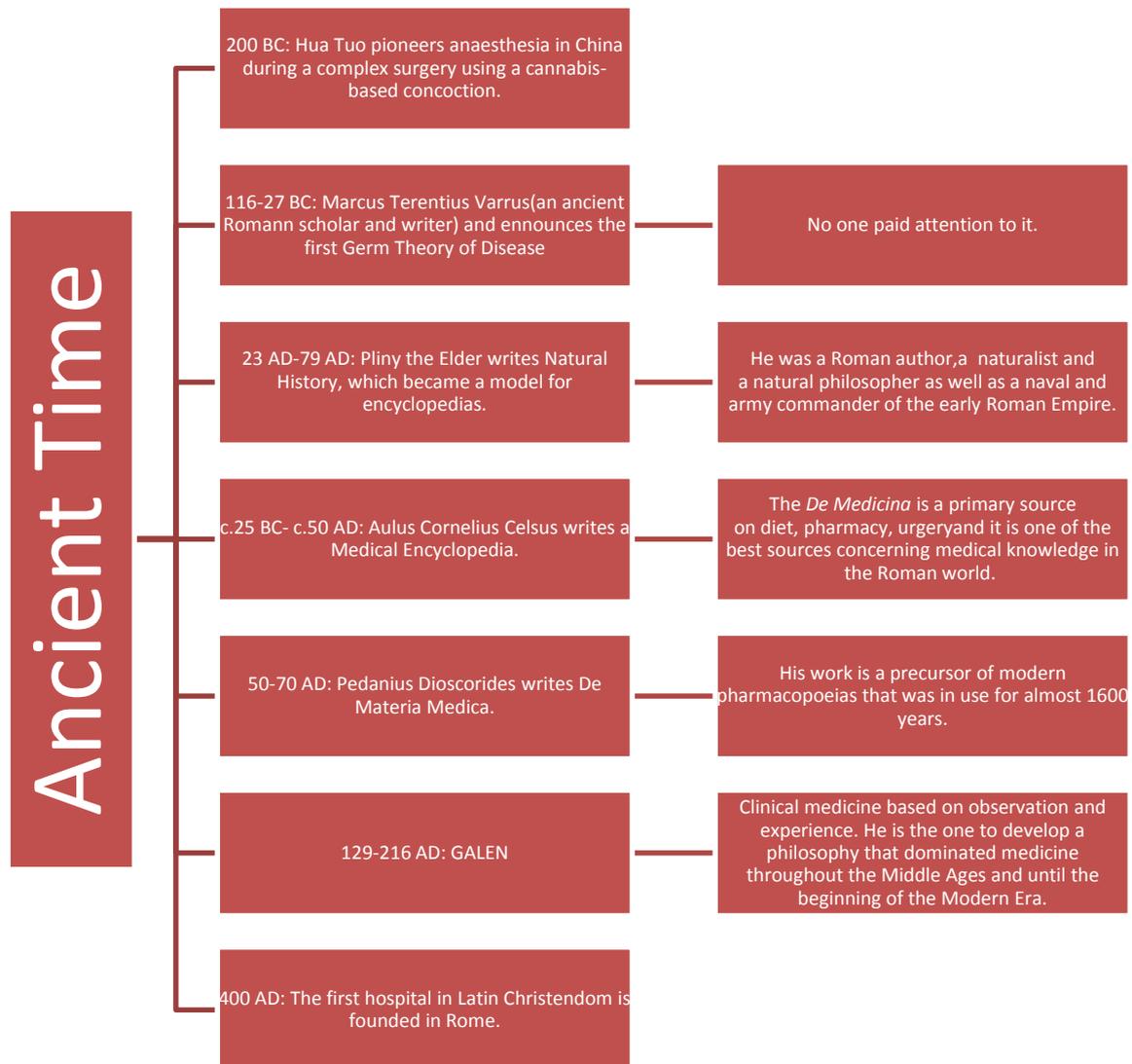
Credit: <http://rozsavolgyi.free.fr/cours/arts/conferences/REMBRANDT%20-%20La%20Le%27on%20d%27anatomie%20du%20docteur%20Tulp.%201632/index.htm>

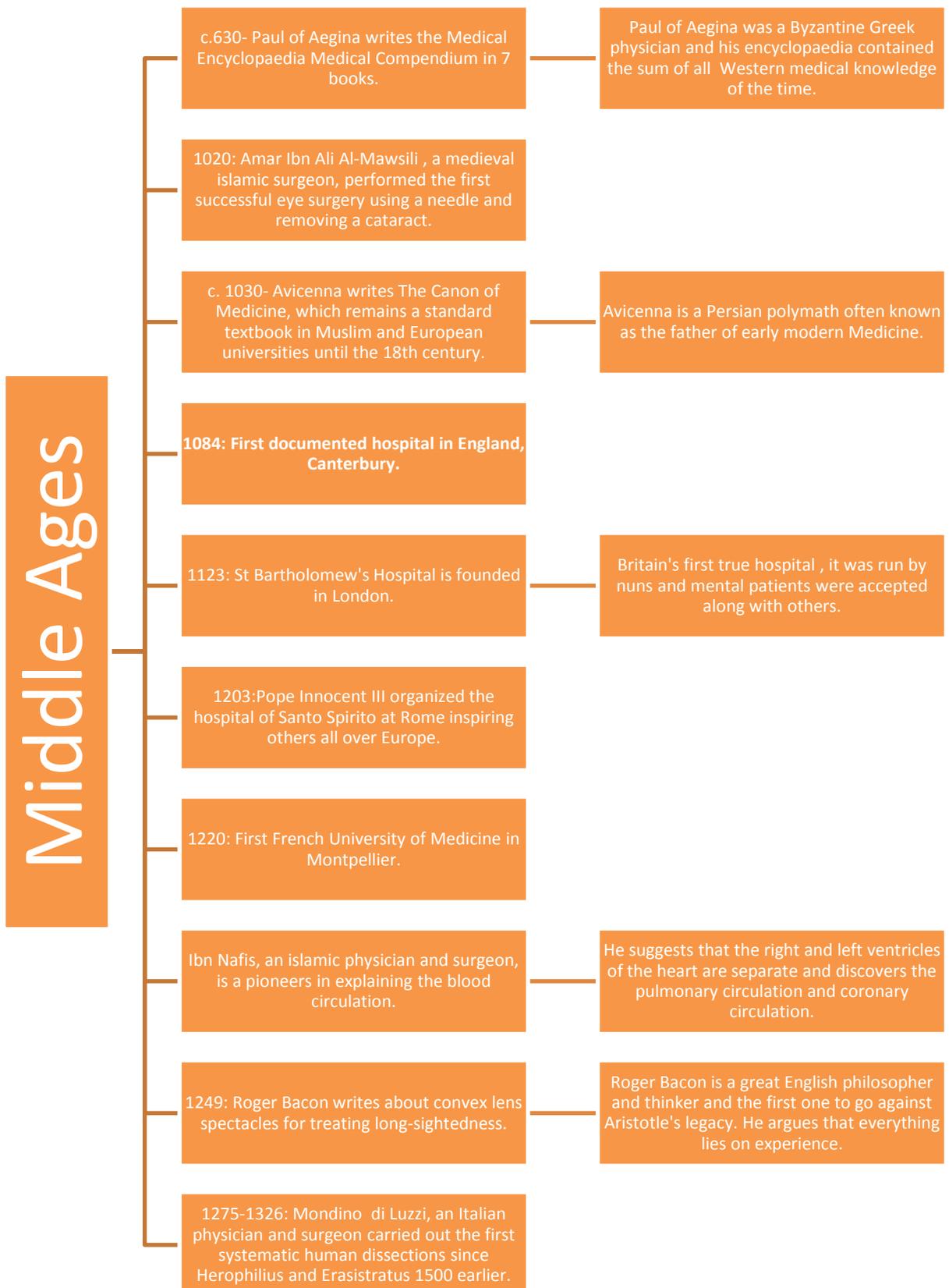
A Short History of Medicine

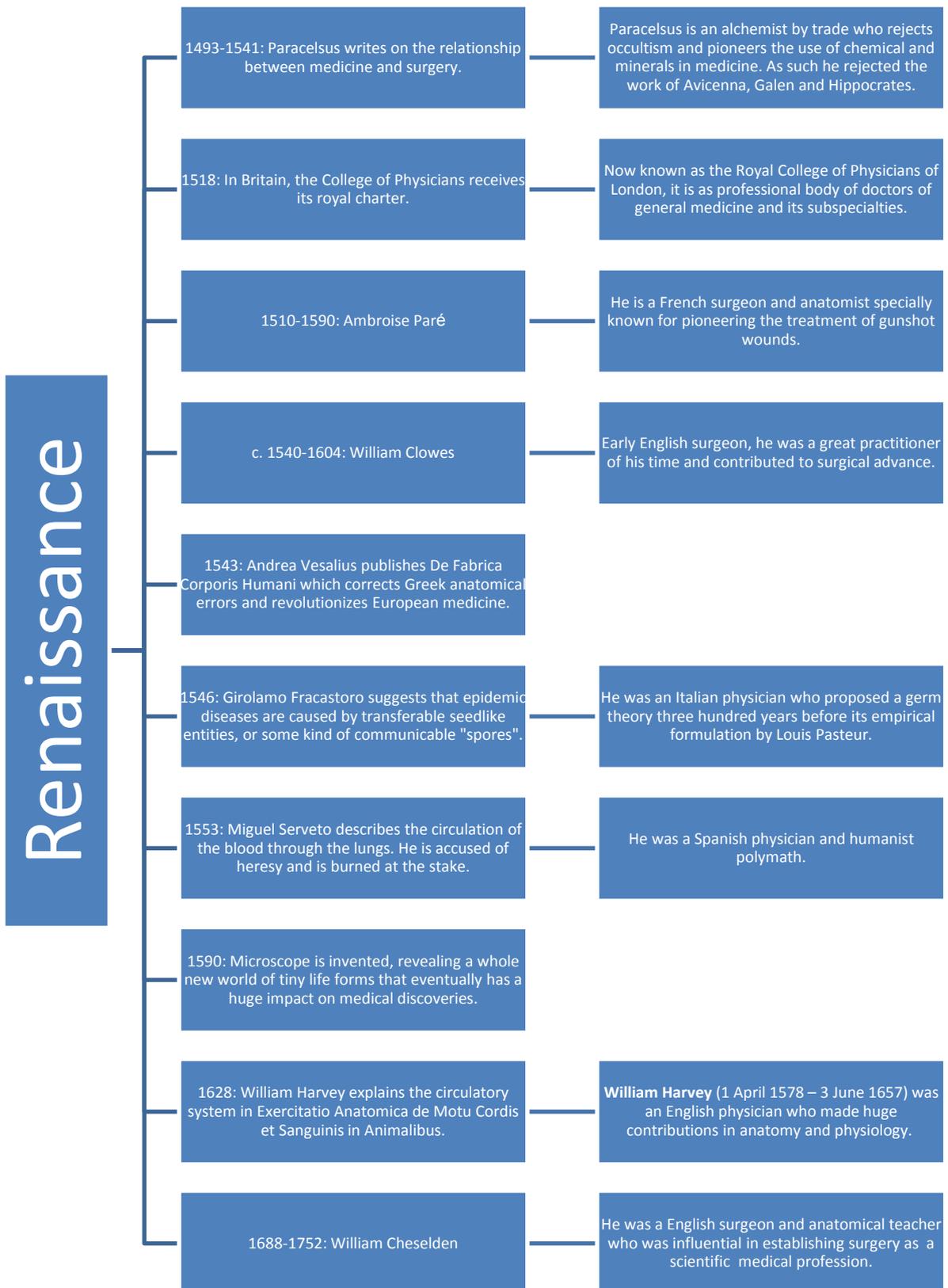
A Medical Chronology from Prehistory to the Modern Era

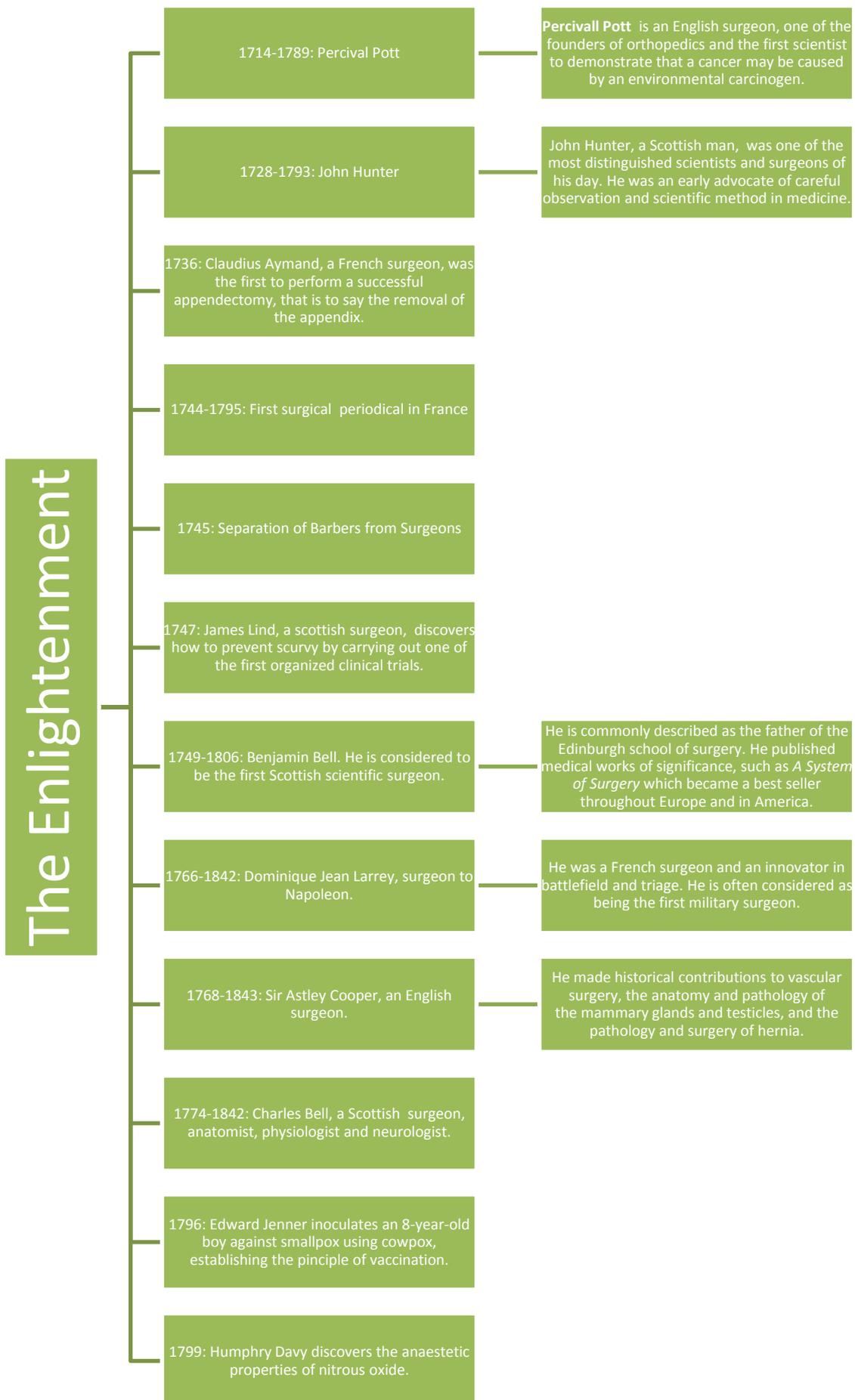


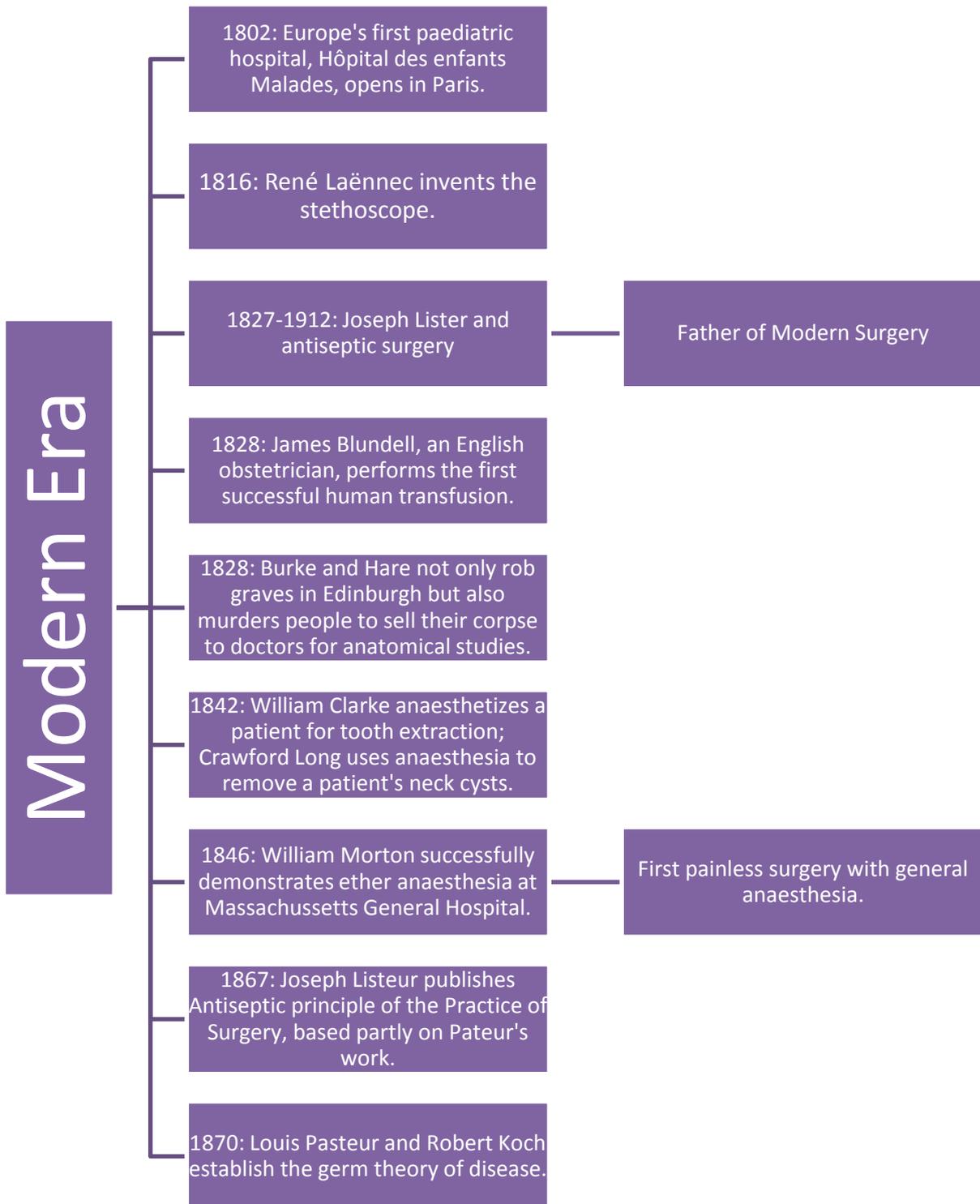












Sources: Medicine, the definitive Illustrated History, Encyclopedia Britannica

Glossary

A

Addison's disease is a disorder involving disrupted functioning of the part of the adrenal gland called the cortex. This results in decreased production of two important chemicals (hormones) normally released by the adrenal cortex.

Anaesthesia Medical inducement for pain relief or complete loss of sensation. Maybe local or general.

Anatomist Person who studies the structure of living things.

Anatomy Study of the structure of the human body

Antisepsis Prevention of infection by inhibiting or arresting the growth and multiplication of microbes

Antiseptic An antimicrobial substance applied to living tissue skin to reduce the risk of infection, which works by killing microbes that may be present.

Apothecary A term used in medieval times to refer not only to the place where remedies were dispensed but also to the person who dispensed them.

Aseptic Technique The performance of a medical or laboratory procedure under completely sterile conditions.

B

Bile The yellow and black "bile" in humorism, a system of medicine that thrived in Europe from around 500BC to the 19th century.

Blood circulation The continuous flow of blood around the body via the heart and blood vessels.

Bloodletting consists of removing blood, usually from a vein.

Bright's disease of the kidney is a vague and obsolete term for kidney disease. It usually refers to non-suppurative inflammatory or degenerated kidney disease marked by proteinuria and haematuria and sometimes by oedema, hypertension, and nitrogen retention.

Bronchoscope A slender tubular instrument with a small light on the end for inspection of the interior of the bronchi.

C

Cardiology The study of the heart and circulatory system.

Cholera An infection of the small intestine that causes severe watery diarrhoea. It results from ingesting water or food that contains the bacterium *Vibrio cholera*.

Contagion A living thing, usually a microbe, that can be passed between people to cause disease.

D

Diphtheria is a potentially fatal, contagious disease that usually involves the nose, throat and air pass ages, but may also infect the skin.

E

Endoscope An instrument used for direct visual inspection of hollow organs or body cavities.

Enlightenment A philosophical movement of the 18th century characterized by belief in the human power of reason and innovations in political, religious, and educational doctrine.

Epidemic An outbreak of a contagious disease in which the incidence rate is much higher than expected but it is confined to a particular region.

G

General Practitioner A doctor who works in the community and treats patients with minor disorders and refers those with more serious conditions to a specialist

Germ A harmful microbe, such as a virus, bacterium, fungal spore, or protist.

Grave's disease is a thyroid dysfunction and all or any of its clinical associations.

H

Humor Body fluids or temperaments (blood/sanguine, yellow bile/choleric, black bile/melancholic, and phlegm/phlegmatic). Early physicians believed in the concept of the four humours, which stated that wellbeing depended on balancing these four body fluids or humours

Hodgkin's disease, or Hodgkin's lymphoma, was first described in 1832 by Thomas Hodgkin, a British physician. Prior to 1970 few individuals survived Hodgkin's disease. Now, however, the majority of individuals with this cancer can be cured.

I

Infection A disease caused by invading microbes such as bacteria, viruses, or similar life form.

L

Laryngoscope An endoscope equipped with a light and mirrors for illumination and examination of the larynx.

Leeching The application of a living leech to the skin in order to initiate blood flow or deplete blood from a localized area of the body.

Ligature A cord-like item used to tighten or constrict, for example a filament or fine thread used to tie up a bleeding artery during surgery.

Lithotomy refers to cutting for stone.

M

Mastectomy is the surgical removal of the breast for the treatment or prevention of breast cancer.

Microbe Any living organism that is too small to be seen by the naked eye.

Microscope An instrument that produces magnified images of very small objects.

Microscopy The process of examination by microscope-often to make a diagnosis.

O

Obstetrics The branch of medicine concerned with pregnancy and childbirth.

Ophthalmoscope Instrument used for the examination of the eyes

Organ Main body part or structure with a specific function, for example the heart, brain, liver, or spleen.

P

Pathogen A microbe that causes disease or other harm.

Pathology The study of disease-its causes, mechanism, and effects on the body. Pathologists conduct autopsies to determine cause of death and ascertain the effects that a disease or treatment has had.

Percussion: in physical examination, striking a part of the body with short, sharp blows of the fingers in order to determine the size, position, and density of the underlying parts by the sound obtained. Percussion is most commonly used on the chest and back for examination of the heart and lungs.

Physician A person who practises medicine-especially one who specializes in diagnosis and medical treatment rather than surgery.

Physiology The study of the normal function of living organisms and their parts.

S

Smallpox A highly contagious viral infection causing fever, red rash, blisters, and bleeding in its severest form, hence its name “the red plague”. Smallpox has now been eradicated following worldwide vaccination programmes.

Sterilization 1-The removal of life forms from an object. 2- Medical procedure to prevent reproduction.

Stethoscope An instrument used for listening to body sounds, particularly from the heart, lungs, and digestion.

Syphilis A chronic bacterial infection that is contracted mainly through sexual intercourse, but can also be passed to a developing foetus.

T

Tracheotomy is a surgical procedure in which a cut or opening is made in the windpipe (trachea)

Transfusion The transfer of blood from a donor to a recipient.

V

Vaccination Deliberate introduction of a weakened disease-causing substance to provide immunity against the disease.

Vaccine A preparation of weakened or neutralized germs, or harmful products, that makes the body become immune to the germs

Virus Smallest type of harmful microbe, consisting of genetic material wrapped in a protective coating: it can only multiply by invading other living cells.

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