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## Ambroise Pare : contributor to modern surgery

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AMBROISE PARÉ  
CONTRIBUTOR TO MODERN SURGERY

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Submitted in Partial Fulfillment for the Degree of  
Doctor of Medicine

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AMBROISE PARÉ

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## INTRODUCTION

"I dressed him, God healed him."  
Ambroise Paré.

"Je le pensay, Dieu le guarit," the apothegm of Ambroise Paré would be a good rule for all surgeons to practice, for surgery is an art, born of many emotions; reared on various diets, and sustained by a constant search for perfection.

Many of us wonder how a patient was ever able to survive the surgical intrusions into the body before the introduction and widespread use of anesthetics, antibiotics and other supportive measures now considered standard procedure in the care of a patient. One man who helped bridge the gap from the barbaric to a more humane method of surgery in the sixteenth century was Ambroise Paré, surgeon and medical practitioner, extraordinary. It was largely due to his curiosity, inborn kindness and constant search for new methods of treatment that we have a sound basis for many of our present day procedures.

This work is dedicated to the memory of that man who was always concerned with the primary subject in all cases--the patient.

## TIMES OF LIFE

The times of Paré were almost as volatile as those of the present day. Power struggles were going on all over the world.

The rulers in France were of the House of Valois from 1328 until 1589 when the House of Bourbon gained control. It was during these two regimes that France was united, the feudal lords were abolished, and until the French Revolution, the right of royal succession was established by birth. The union of France was assured at a terribly high price, mostly done in the name of religion. The Pope in Rome and the Guises' in France were concerned because if France fell to the Protestants, as had happened in England, the power of the Roman Catholic Church would be lessened all over the continent, since France bisected the European trade routes. The religious wars that engulfed France were as long, senseless, vicious, and bloody as any seen before or since. Much of the impetus for the persecutions came from the Spaniards but some of the protestants in Holland demonstrated considerable barbarism.

Medieval institutions began to disintegrate with the rise of the middle class in Italy. This was the result of many factors. The trade routes were opened; money lending became profitable; gunpowder had been introduced in the Battle of Crecy in 1346; the Black Death took a dreadful toll; and the people revolted against the Popes for their high taxes. Business men who saw the freedom afforded by the protestant countries became disenchanted with the church, and joined the protestant group or remained catholic in name only. The only

business in France that was financially sound was the Catholic church with some estimates of strength going as high as 94,000 ecclesiastics, 70,000 monks, 80,000 nuns, 2,500 Jesuits, plus cathedrals and related properties to maintain. Public offices were sold to the highest bidders and the state finances were in a deplorable state.<sup>1</sup>

The invention of the printing press helped speed the renaissance by visual communication. Prior to this only those connected with the courts and monasteries who could read Latin and Greek had access to direct book learning. Readers and copiers were peasants who had been taught the essentials of reading and writing. With the introduction of the printed book many people could obtain information first hand, since books were printed in the native language. France was composed of a series of small states and each had its own dialect, idioms and phrases until the middle of the fifteenth century. It was largely due to the efforts of Montaigne (1533-92) and his literary contemporaries that a workable French language was developed.

There was a pleasant continuity in home life for the peasant, he was married by the priest, attended church regularly, partook of the sacraments once a year, and had a satisfying existence in spite of the church.

Catherine de Medicis brought politeness with her from Italy and Henry III had a code book published with very specific details as to dress, lists of those who might attend him, address him, participate in his hunts and attend the balls

and dinners. Court finery became increasingly expensive, and couriers felt that they had to own at least twenty-five costumes of various styles. Men wore their hair in long curls, and women piled their hair high on their heads in many alluring styles. Beauty marks on the cheek became popular. Tennis was in vogue and dancing called many a lonely soul to its ranks. Catherine introduced the ballet. Very ornate settings from Italy were added. Musicians became popular. The lute was the most favored of the instruments but with the introduction of the violin from Italy it took first place at the court. Singing was also very popular.

Crime was prevalent on the dark streets of Paris. Robbery was frequent, and murder seems to have been commonplace. Penalties for many crimes were rigid, but the crime rate may have been even higher without fear of reprisal. Common criminals and religious internees were often given punishment worse than death. They were delivered to masters of galleries, and had the word GAL burned on their backs. The usual term for most crimes was ten years, and many prisoners committed suicide, especially the women at Lyons and Marseille. Death took a heavy toll among the slaves and replacements were needed constantly.<sup>1</sup>

Public coaches made transportation easier. Many carriages were fitted with elaborate interiors, glass and curtains.

Civil architecture was outstanding during the period of the religious wars. The best examples are those of the City Halls at La Rochelle, Reims and Lyons. The 807 foot long



Palace of Tuileries was located west of the Louvre along the Seine. It was completed in 1564 in Renaissance style; but was destroyed by fire during the 1871 commune.

Interior decoration became more ornate, with chairs, chests, cabinets, bedsteads, tables, and almost all types of household articles being carved or inlaid with jasper, rare woods, agate or ebony. These furnishings now appear over-decorated; but such work provided good training for many artisans. Walls and cornices were also decorated with plant or animal forms, usually the flowers of the reigning monarch's house, the fleur-de-lis or the tri-color.

Jean Gobelin opened a dye works in Paris in the late 15th century and his descendants added a tapestry factory in the 16th century. Francois I had them open a branch at Fontainebleau and to this day among the finest tapestries in the world come from their factories.

Jacques Callot sketched beggars, gypsies and the dregs of humanity, preceeding Goya and his true life paintings by two centuries.

Bernard Palissy, 1510-1589, was a chemist, teacher and superb potter. He searched for many years before he found the exact formula for clays that would produce a pure white enamel. He became so famous for his creations that he was saved from the St. Bartholomew massacre by Catherine, even though he was a devout Huguenot.

Leonard Limousin, 1535-1574, produced enamel miniature portraits that have not yet been equaled in their composition and exquisite detail.

Gem cutting, ironwork, textiles, drawings, engravings and the art of gardening during the time of Paré equalled, or even excelled, those of any on the continent including Italy.

Dueling was commonplace, and the seconds were also expected to fight. Swords were a part of the male dress during this age. It may be assumed that some of the participants came to the hospital for treatment while Paré was serving his "intern-<sup>1</sup>ship".

Rhubarb, senna, bitter apples, turpentine, camphor and mercury were standard ingredients for the physicians' prescriptions. Sweating was a popular method for the treatment of influenza. Laudanum and guaiac were used for the treatment of gout. Tobacco was thought to relieve a cold and inhalation of tobacco smoke was prescribed.

Scurvy was recognized as the Black Death of the sea, but was also prevalent in areas affected by famine. The plague swept across the continent in a cycle that was constant and was often related to religious pilgrimages. Malaria was endemic in Rome. Those suffering from rheumatism were advised to follow a carefully prescribed regimen of treatment.

Fracastorius, the Veronese poet-physician described syphilis and offered a series of treatments which were often as distressing as the disease itself.

Vesalius, having been denied a request for cadaver material in Paris and Louvain, moved to Padua and began dissections there. His illustrations were prepared by the pupils of Titian.<sup>2</sup>

This brief review of events which took place during  
Paré's life should serve as a background for this stimulating  
and interesting period of medical history.

PERSONAL DATA

- 1510 Born at Bourg-Hersent, Laval  
 1523 Apprenticed to Vialot-Master Barber-Surgeon of Vitre  
 (tradition)  
 1531 Apprenticed to Barber-Surgeon in Paris(tradition)  
 1533 Internship at Hotel-Dieu(approximate)  
 1535 Started practice  
 1537 Army service under Duke de Montejan; new treatment for  
 gunshot wounds  
 1541 Licensed as Master Barber-Surgeon. Francois and Emperor  
 at war. Married.  
 1542 Siege of Perpignan with de Rohan  
 1543 Battles of Maroilled, and Landerneau, serving de Rohan  
 1545 Published La Methode de traicter les playes faictes par  
 hacquebutes. To Boulogne with de Rohan. 1st child  
 born, short survival. Francois I died('47)  
 1548 Published Anatomy and Briefve Collection  
 1550 Published 2nd edition of Briefve Collection  
 1552 With de Rohan to Toul, Nancy, Metz, and Verdun; first  
 use of ligature in amputations; to Chateau-le-Comte;  
 appointment as King's Surgeon-in-ordinary; Paré  
 smuggled into Metz with supplies.  
 1553 Fall of Therouenne, siege of Hesdin, capture of Paré,  
 treatment of M. de Vaudeville, subsquent release and  
 return to Paris.  
 1554 Request for examination by College of Surgeons, passed  
 preliminary, also Bachelor of Surgery, conferred title  
 of Licentiate of College of Surgeons, licensed as  
 "Sworn Surgeon". Admission to College of Surgeons  
 as Master Surgeon, with ridicule by their faculty.  
 1557 To La Fere to treat wounded  
 1558 To camp at Dourlan  
 1559 Tournament injury of Henri II, treated by Paré and  
 Vesalius, autopsy and embalming of Henry by Paré.  
 2nd child born.  
 1560 Francois II died, embalmed and autopsy by Paré. 3rd  
 child. Retained as Surgeon-in-ordinary by Charles IX  
 1561 Published Anatomie universelle du corps humain;  
 compound fracture of left ankle  
 1562 Published La Methode curative des playes, fractures de  
 la teste humain; named Premier-Surgeon and Valet-de-  
 Chambre by Charles; treated King of Navarre  
 1564 Publication of Dix Livres de la Chirurgie; to Fontaine-  
 bleau and then a two year tour of France with the  
 Court. Paré studied the plague.  
 1567 Paré tried to unite all surgery under one head, was  
 defeated in his purpose  
 1568 Published Traicte de la Peste  
 1569 Battle of Moncontour, expedition to Flanders, Belgium  
 1572 Published Cinq Livres de Chirurgie; St. Bartholomew's  
 Day massacre in Paris, Paré saved by the King in  
 the Louvre

- 1573 Published Deux Livres de Chirurgie  
1574 Death of Charles IX, autopsy and embalment by Paré.  
Henry III named King, appointed Paré Premier-Surgeon,  
Councillor and Valet-de-Chambre  
1575 Publication of Les Oeuvres de M. Ambroise Paré,  
attempt by faculty to prevent printing failed. 4th  
child  
1576 5th child  
1578 6th child  
1579 7th child; 2nd edition of Les Oeuvres  
1580 New religious wars-plague claimed 60,000 in Paris in  
six months; Paré commissioned to study plague, re-  
issued 1558 book on Plague. Dean Gourmelen started  
his attacks on Paré's surgical discoveries; Paré  
started work on Apologie and Treaties  
1581 8th child  
1582 Published Discours d'Ambroise Paré, De la Mumie  
1583 9th child  
1585 Published 4th edition of Les Oeuvres, which contained  
the Apologie and Treatise; 8th War of Religion; War  
of the Three Henris, Henri de Guise, Henri III and  
Henri de Navarre.  
1587 Recording of Paré's will  
1588 Temporary peace between King and Guise(July); murder  
of Guise at Blois by the King and also of Cardinal  
de Guise (December)  
1589 Paré working on 5th edition of Les Oeuvres, published  
in 1598  
1590 March on and siege of Paris by Navarre (May), siege  
lifted August 29. Paré died December 20, buried in  
St. Andre-des-Arts Church. 3

## EARLY LIFE

In the walled village of Bourg-Hersent, outside Laval, in the Mayenne province, Paré was probably born in 1510; his obituary stated that he was eighty years old when he died in 1590.

Legend has it that Paré was put to board with a neighborhood priest in order to learn Latin. He either did not have the aptitude for it, or he was used to do only menial tasks<sup>4</sup> around the grounds, and soon left that service.

There is considerable doubt as to his father's profession, but it is felt by several sources that he served as valet de chambre and barber to the Dieur de Laval.<sup>4,5</sup> He must have served some time with his brother, Jean, who was a barber-surgeon in Vitre before going to Paris since it is noted that he was with Jean when two imposters were forced to flee after they were exposed as not having a gangrenous arm, or leprosy.<sup>3</sup> Two of Paré's sisters married barber-surgeons, and another brother was a cabinet maker, so his father might have been a barber in the day time and a cabinet maker at night.<sup>6</sup> Another story, that has survived the ages, was that Paré watched Laurent Colot operate on one of the Chaplain's friends before he left home.<sup>7</sup>

Whatever training he had as a young man was surely helpful to Paré when he went to Paris in 1530, '32 or '33, depending on which reference is used.<sup>3, 4, 5</sup>

The Hotel-Dieu, the first charity hospital founded in France, located in Paris, was to be Paré's laboratory for the

next few years. The hospital was founded by St. Landry about 600. It is not certain how Paré received his appointment to serve here. He proudly tells later of his years there, but did not mention by name any of the professors under whom he served.<sup>4</sup>

Jean Tagault served as Dean of the Faculty of Medicine from 1534 to 1537, and gave a series of lectures on surgery. He planned to publish these but was not chosen to be a patron of the King. Instead Vidus Vidius was chosen to have his lectures printed. Tagault finally did receive permission for publication, but died without receiving the honors rightfully due him.<sup>4</sup>

Michelet graphically relates the first lecture that Paré attended. Paré and the other students were ranged in seats around the tall room, with stylish columns and windows with glass panes. On the table was a cadaver, about half putrefied. The students talked among themselves, and then there was silence as the Professor, in his long robe and square hat entered. The students rose, applauded, and then "Le cours d'Anatomie commençait." The dissection began after the arrival of a barber-surgeon, because the Professor would not touch the body.<sup>8</sup>

The textbooks that the students used were by Gui de Chauliac and Jean de Vigo, both of which had been translated into French. The Faculty of Medicine and the Surgeons at Montpellier translated the works of the ancients into French to help the unlettered barber-surgeons; but the faculty in Paris refused to do this. It was during this time that Paré and de Heri decided to write their own books, which they both did much later.

There were three classes in the medical family during this period. The Physicians were members of the Faculty of Medicine. They controlled all learning, were usually products of a monastery, and had done research only with words. It is stated that many of them received their degrees without ever having performed an autopsy. In fact, in their vows they promised never to touch a patient; promised to serve during epidemics (but they could hire someone to take their place); to give a certain amount of time to the poor, and to teach needy students at a reduced rate. They were so generous with their time that they gave their lectures at four o'clock in the morning. It seems incredible that they could diagnose patients then without touching them. Perhaps they were 300 years ahead of their times, since it is said some physicians are making diagnoses by using modern machines. The Surgeons were supposed to do only dressing of wounds, cautery, drain abscesses, treat with unguents, and the common treatments that would require "cutting". They must have been men of a different cut of cloth than the average man of that time because they had no formal training, and with the high infection rate it would take a strong constitution to endure the patient's suffering. The Barber-Surgeons were the working segment of the surgical group. These were usually men that could not read or write Greek or Latin, the languages of the scientific world at that time. They were apprenticed to barbers for a period of time not known. We may assume that they stayed with their teachers, or barbers, until they had enough money, or following, to start their own shop. They had to learn how to



cut hair, shave patrons, dress wigs, and help their masters  
with crude surgery.<sup>4</sup> It is fortunate for the people of France  
that Paré was in this class. If he had been versed in the art  
of reading the classical languages he might not have gone to  
the battlefield for his training in practical surgery.

At the Hotel-Dieu Paré soon became a *compagnon chirurgien*,  
comparable to our present resident. No known source tells of  
their specific duties, but it assumed that they treated  
patients, assisted with operations, research, and autopsies.  
Most obstetrical cases were handled by mid-wives at that time,  
some of whom attained great fame for their skill. If there was  
excessive bleeding a surgeon was called in for consultation.  
Paré explains in one of his books the mechanics of podalic  
version which he brought out of the past into a good usable  
procedure. His own daughter was later assisted in childbirth  
by the method advised<sup>4</sup> by Paré.

"Vers la fin de l'année 1536 Ambroise Paré avait l'intention  
de passer ses examens de barbier-chirurgien." (Towards the  
end of the year 1536, Ambroise Paré wanted to take his exams  
for Barber-Surgeon). With his usual optimistic air he found  
that he did not have the right books, he did not know Latin,  
and he certainly did not have the money, so he decided to do  
something else, and that something else was to join the army. 8

## THE WAR YEARS

In the time of Paré there were no surgeons assigned to the field armies by the King because France was protected by the soldiers of various small kingdoms in addition to those assigned to the King. Each field unit had its own set of physicians, surgeons, barber-surgeons, servants and camp followers. The camp followers usually went along to make money nursing the common soldier and from the peasants in the country through which the army was passing at the time.

Just how Paré was chosen to accompany the expedition sent out by the King to Turin is not known for certain, but the third in command was the Duke de Monteján. He was from Anjou where Paré had grown up, and Paré's brother practiced there. The Duke may have heard of Paré from him. In any event, he was one of the men hired by the Duke as a surgeon.<sup>3</sup> This was the beginning of a pattern that was to last for almost twenty years; off to a battle, then back to Paris for a while, and then off to the wars again, with France in a terrible state of affairs.

The army doctor usually rode a horse, while the enlisted men had to hike. Paré often spoke of his horses.

The army entered into battle against the Roman Empire forces of Charles V at Turin. It is this encounter that Paré described so colorfully in 1585. Captain Rat was wounded in the ankle and he said, "Now is the Rat taken." Paré notes, "I dressed him, God healed him." It was also in this battle that Paré had his first extensive experience with gunshot wounds and burns. He had seen many burn patients in Paris, but these were of a

different kind. They were not only more numerous than he had seen, but were much more severe in nature. When wounds necessitated amputation, it was done without anesthesia. Fortunately most of the wounded were in shock or they could not have tolerated the agony of cautery with boiling oil. Paré found that his supply of hot oil was quickly depleted so he was forced to use a "digestive made of the yolke of an egg, oyle of Roses and Turpentine." He found the next morning that the patients he had thus treated were much more comfortable than those who had been treated with boiling oil. He determined never again to add the pain of burning to that of the original injury.<sup>9</sup>

It seems quite possible that Paré absorbed much Italian culture during the nearly two years the army was in Turin. In addition, he was always on the lookout for new treatments for his patients. A peasant lady advised him to use onion juice poultices for scalding burns. He tried it, using the poultice on half the burn, and nothing on the other side of the burned face. His comparative studies showed him the usefulness of the formula, which he gave to the ladies of Hotel-Dieu when he returned to Paris.

A surgeon in Turin seemed to have unusually good success with a soothing oil for the treatment of gunshot wounds. Paré tried unsuccessfully to obtain the formula. He finally told the surgeon that he was going back to Paris and would not be competing with him, and so obtained the secret: "boyle young whelpes new pupped, in oyle of Lillies, prepared earth wormes, with Turpentine of Venice." Paré used this for several years.<sup>6</sup>

Tournaments, dueling and the normal injuries prevalent in the ranks of the officers and enlisted men gave Paré plenty of work. He called into consultation a local doctor to treat Montejan who was ill. The local doctor told Montejan, "You have a surgeon youthful in age, but old in knowledge and experience; regard him well for he will be of service and honor." 'But the good man did not know that I had lived three years at the Hotel Dieu de Paris, to heal the sick there.'" Montejan died and even though Paré was asked to stay on with his replacement,<sup>4</sup> he returned to Paris.

Theodorico de Heri who had been with Paré at Hotel Dieu also returned to Paris about the same time as Paré. Heri had been in Italy to study syphilis. The two started to study anatomy in earnest for their examinations to be licensed. Paré obtained the cadaver of a recently executed criminal and he and Heri dissected half of it. Paré was able to keep the other half in his rooms in good condition for twenty-seven years.<sup>3</sup> The two men passed their examinations late in 1541. It is noted that Paré had to take two examinations. It is possible that he failed the first one, or it might have been that they were required to take two. Heri published his book on venereal disease in 1552, with much help from Paré. Heri likewise helped Paré with several of his books. They were good friends until the death of Heri about 1561.<sup>4</sup>

Paré married for the first time in 1541. Three children were born but only one girl grew to adulthood. Paré remarried following the death of his first wife. Six children were born in this marriage, but only two girls lived to adulthood. One

girl was delivered by podalic version by J. Guillemeau, a pupil of Paré's. Paré amassed considerable property in Paris, plus a country place about six miles out at Meudon, where he enjoyed his gardens, flowers, vineyards, and the joys of rural living. He had a great affection for his relatives, and was very considerate of his apprentices who lived in the compound of houses where Paré had his shop and a small museum. From the time of his first marriage, he always had several books in various stages of writing.

Professor Sylvius, on the staff of the Faculty of Medicine, invited Paré to visit him at his home. This was an unprecedented act of semi-approval of a member of the Brotherhood of St. Comas of which Paré was by then a member. The two talked at length about Paré's treatment of gunshot wounds, the onion poultices, and various other areas in which Paré had gained fame as an army surgeon. The hour grew late and Sylvius invited Paré to stay for dinner. That evening Sylvius requested Paré to write a book about his treatments. This request may have been made for spite, to discount the theories of Vigo, with whom Sylvius had had some disagreement. For whatever the reason, Paré started to write the book, but was again called into service with de Rohan to Perpignan.<sup>6</sup>

It was during the Perpignan campaign that the Count de Brissac was wounded in the shoulder, and his own physicians were unable to find the bullet. Paré was called in consultation, and he had de Brissac assume the same position with the muscles tensed as when he was injured, and thus Paré was able to locate

the bullet easily. Paré declined to remove it, leaving the job to Lavernault. Many years later when Lavernault died, having served as Surgeon to King Francois, Henri II, and finally Charles IX, Paré was chosen to succeed him.<sup>3</sup>

In 1545 Paré published his first book, "La Methode de Traicter les Playes faictes par Hacquebutes, etc.." It was subsequently reprinted in 1552 and 1564. The book was dedicated to de Rohan, and written in French. It was quite reasonable in price, and Paré said if it was well received he would write another one soon.<sup>4</sup>

His second book, "Briefve Collection de l'Administration Anatomique, etc." was printed in 1549. This work was based on his work with de Heri and prepared for the barber-surgeon who knew no Latin. His motto, "Fin est la mort et principe de vie," (Death is the end and the beginning of life), appeared first in this book. The first use of a Latin motto was in 1561, "Labor improbus omnia vincit." (Hard work conquors all). He also added a portion on podalic version, attributing it to the ancients, but stating that he had seen it performed by de Heri and Lambert and their contemporaries. It had no illustrations, as it was meant to be used on the battlefield, and it must have been well used, as only one copy has been located.<sup>10</sup>

Francois I died in 1547 and was succeeded by Henri II, husband of Catherine de Medicis. They had ten children, three of whom lived to become Kings of France. Late in 1551 or 1552, Paré had his book on "Gunshot Wounds" reprinted, and de Rohan, in whose hire he was at that time advised having it dedicated

to the King. Paré was, in this manner, able to obtain the services of a better printer and added forty-three woodcuts. These included pictures of artificial limbs over which Paré had labored many hours.<sup>4</sup>

It was also in 1552 that Paré accompanied de Rohan, who was killed that November, to Germany. It was on this trip that he earned the title of charitable surgeon because he took care of a terribly wounded soldier and put him on a wagon rather than allowing him to be buried alive, or to be left by the wayside for the farmers to kill. When the soldier was well the soldiers each gave him a ecu, and the archers each gave him a demi-ecu. He also wrote that he felt like he was starving to death on this trip, as the countryside had little food left after the long sieges. At the siege of Danvilliers, Paré amputated a soldier's leg using ligatures in place of hot irons. In his "Dix Livres La Chirurgie" published in 1564, he tells the young surgeons to forego cautery in its entirety and use ligatures, as he had had such good results with them.<sup>4</sup>

Paré was next employed by Monsieur de Vendome, King of Navarre, who asked him to go to Picardy. Paré tried to escape this duty, saying his wife was not well, but Vendome told him he also had a wife, and there were other physicians who could look after Paré's wife. Besides he told Paré he would take good care of him. After a successful campaign in Picardy, Vendome presented Paré to Henry II who appointed him as one of his surgeons.<sup>6</sup>

The next adventure of Paré was during the siege of Metz.

The Emperor Charles V attacked Metz. The noblemen, including Conde, who was opposed to the King, and the other nobles determined to hold the city. Their position became worse with each passing day. Paré was finally summoned to bring fresh drugs, and determine why the mortality rate was so high. He was smuggled into the city at midnight by an Italian Captain. Paré noted that the reason for the severity of the injuries was not due to the fact that the bullets had been poisoned, a theory he had long ago believed not to be true, but rather to the extreme cold, poor food and inadequate shelters for the men. It was inevitable in such surroundings that the plague should take its toll, and near Christmas, de Guise decided to abandon the city, and Paré was allowed to return to Paris where he was richly rewarded by the King.

In 1553 Paré was captured at Hesdin by the Spainards under the King of Savoy. Paré disguised himself as a poor peasant and accompanied de Martigues who had been wounded. The Spainards hoped to receive a large ransom for de Martigues, but Paré said that he was going to die and this was verified by the Spanish physician. An imposter said he could cure de Martigues, but two days later he died. Paré was asked to perform an autopsy, which he tried not to do, but finally was told to do it and his pride took over. He not only did a creditable autopsy, but gave a very fine lecture on anatomy. The Emperor's surgeon asked Paré to stay on with them and he would be provided with a horse and fine clothes. Paré refused, saying he did not to work for strangers, which so infuriated the Spainard that he



said Paré should be killed. It was just in the nick of time that Monsieur de Vaudeville sent word to the Duke of Savoy that he would like to have Paré come and treat an ulcer he had on his leg. Paré was sent and promised his freedom if he could cure the ulcer. The treatment of the ulcerous leg is detailed down to the last bowl of soup, heat and massage, sunshine, and some travels that Paré was allowed to take. So that he would not try to escape he was forced to wear "a great red scarf, which he commanded me to wear. I may say, I was as glad of it as a dog that hath a clog for feare he should go into the vineyard and eat the grapes." He was sent home with an escort and the King not only paid Paré the ransom money, but also learned much about the defenses of the Spaniards which was very useful in a later campaign.

This was the time of his life when Paré wrote his most famous book, at least the one which has received the greatest acclaim. The circumstances of the day were such that politics played an important part in everyday living. Paré was asked to become a member of the College de Saint Come. He knew no Latin, but the faculty wanted him to become a member of their faculty because that would raise their influence at Court. Paré was admitted into the College without paying his fees first. In August he received his first long robe, and in November the College met again and decided to make him a Master. On December 3 almost the entire College met and helped him with his examinations. On December 17, Ambroise read a Latin thesis and the next day he received his hat. Twenty-three years later Dean

Riolan made fun of the procedure, and rightly so. However that was the way it had been; and because Paré was a surgeon, and the surgeon to four Kings, the College of Saint Come was elevated to a high place, at least for that period of time.<sup>3</sup>

Henri II was injured in tournament play and died as a result of his wound. Francois II was named King of France in 1559. He had Paré named as his Surgeon, and following his death in 1560, the new King, Charles IX, retained Paré as Surgeon-in-Ordinary.<sup>4</sup>

Paré tells us about his "Personal Case of Compound Fracture of the Legm 1561." He says that he and M. Nestor and Richard Hubert were going to visit some patients and to do so had to cross the river. Paré switched his horse and he said, "The excited beast kicked me, entirely breaking the two bones of the left leg, four fingers above the ankle." Then Paré did a careless thing. He was afraid the horse would kick him again, so he "stepped back a pace, and suddenly fell down. The broken bones came out through the flesh, stocking and boot, from which I felt as much pain as a man can endure." It is interesting to note that like any doctor he said, "I begged M. Richard Hubert not to spare me any more than a stranger in his care; that in reducing the fracture he forget the friendship he bore me. Moreover I admonished him, (even though he knew his Art well) to strongly pull the foot straight..." On the eleventh day Paré experienced fever, drainage, and pain for another seven days. It was another month before he could support his weight on the ground.<sup>11</sup>

In 1562 Paré was appointed by King Charles IX as Premier-Surgeon. He accompanied the royal army to Bourges and Rouen. It was during the siege of Rouen that the King of Navarre was struck in the shoulder by a bullet. He gradually became worse, and as Paré had said during his many consultations during the eighteen days the King lived, the bullet was in the cavity of the humerus. Paré removed the bullet at autopsy and sent it to the Queen-Mother and the King. It was during this campaign that Paré found that Egyptiacum, a salve made from honey and alum was much more satisfactory in treating burns than his live puppy oil. He later added another preparation made from brandy and turpentine to his list of good burn treatments. <sup>4</sup>

Paré's work "On Surgery" shows how detailed he was in spelling out the surgeon's duties.

"Chyrurgerie is an Art, which teacheth the way by reason, how by the operation of the hand we may cure, prevent and mitigate diseases, which accidentally happen to us. Others have thought to describe it otherwise, as that; it is that part of Physicke which undertaketh the cure of diseases by the sole industry of the hand; as by cutting, burning, sawing off, uniting fractures, restoring dislocations, and performing other workes, of which we shall hereafter treat." <sup>12</sup>

From 1564 to 1566 Paré was with the royal family to visit the provinces, but the trip was really a thinly veiled attempt to determine the strength of the Huguenots. Before the party left Fontainebleau, Paré saw his "Dix Livres de la Chirurgie, etc.," printed. It had two hundred thirty-two pages, one hundred-fifty-eight wood-cut illustrations, and was his most ambitious work to date. He added three chapters on Urology, but most of it was a rewrite of his book on "Gunshot Wounds," and was dedicated

to the King. While on this trip Paré met Nicolas Picart who had developed a method of reducing shoulder dislocations, and Paré again visited Picart when he returned to Nancy in 1575. Lyon was in the midst of a plague epidemic while the royal party was there, and Paré made many observations on the course of the disease. Paré also saw many "monsters," was bitten on his finger by a viper, and saw whaling off the coast.

At Orleans Paré was able to bribe a chemist with the promise of a pair of velvet pants if he would give him his formula for a cautery. The chemist hesitated because he said Paré told all secrets entrusted to him. The pants finally won him over, and Paré did tell the whole world about the "velvet cautery," a caustic which made an "opening that would admit a finger, down to the bone." Paré did not feel that he had betrayed a confidence for he noted that when the chemist gave him the formula it was no longer a secret, and that all the surgeons of France should know about it. The royal trip continued, sometimes as virtual prisoners of the Huguenots, and after twenty-seven months they returned to Paris with the religious question still not settled to anyone's satisfaction.<sup>3</sup> It has been suggested that when the party was at Bayonne and met Alva, that the Massacre of St. Bartholomew was planned.<sup>4</sup>

Catherine asked Paré to write a book on the plague. He had the book ready for the printers in May, 1568. It had two hundred seventy-five pages, no pictures, and is considered one of his most systematic books, although of little scientific value. He was criticized for having written about a medical

subject, but he replied that he had been asked by the Queen-  
Mother and the King to compile the material.<sup>3</sup>

The King ordered Paré to go see Monsieur le Marquis d'Auret who had been injured about seven months previously, resulting in a fracture of the bone near the knee. Paré went, and after looking at the leg said, "Truly I had a very great regret to have gone to him, because it seemed to me there was little appearance that he could escape death." After consultation with the Marquis' personal physicians a course of action was determined which consisted of cleanliness, nutritious diet, exercise, heat to the affected parts, and many other aids to promote healing. Within two months the leg healed enough so that he could be taken outdoors, and when he left, Paré was rewarded with a diamond ring from his sister, a gift from the Marquis, and was sent home with personal guards.<sup>4</sup>

Paré had definite ideas about how to treat wounds, and his rules are herewith included.

"The Chirurgeon ought for the right cure of wounds to propose unto himself the common and general indication; that is, the uniting of the divided parts, which indication in such a case is thought upon and known even by the vulgar: for that which is dis-joined desires to be united, because union is contrary to division. But by what means such union may be procured, is known to the skilfull Artisan. Therefore we attain unto this chief and principall Indication by the benefit of nature as it were the chief Agent, and the work of the Chirurgeon as the servant of nature. And unless nature shall be strong, the Chirurgeon shall never attain to his conceived, and wished for end: therefore that he may attain hereto, he must perform five things; the first is, that if there be any strange bodies, as peeces of Wood, Iron, Bone, bruised flesh, congealed blood, or the like, whether they have come from without, or from within the body, and shall by accident fastened or stuck in the wound, he must take them away, for otherwise is no union to be expected. Another is, that he join to-

gether the lips of the Wound; for they cannot otherwise be agglutinated and united. The third is, that he keep close together the joined lips. The fourth, that he preserve the temper of the wounded part, for the distemper remaining, it is impossible to restore it to its unity. The fifth is, that he correct the accidents, if any shall happen, because these urging, the Physitian is often forced to change the order of the cure." 13

Paré had taken his last trip with the army. He was sixty years old, and for the next twenty years he devoted his time and energies to being at the call of the King, seeing patients at his office, and at their homes near Paris, writing, experimenting, and teaching young surgeons.<sup>3</sup>

## LATER YEARS

"Cinq Livres" was printed in 1572, and was the first book in which Paré describes a fracture of the head of the femur. It was also the first appearance of the teaching of bandaging in fractures and dislocations that had come down from the ancients, although Paré had used all of them many times. In 1573 his "Deux Livres" was printed with two chapters on tooth-ache and extractions included. This book was the first in which he had his French motto at the beginning of the book and the Latin at the end of the book.

The religious turmoil that had been brewing for a long time spilled over on St. Bartholomew's day. All the Huguenots had been invited to the wedding of the Huguenot Henri, King de Navarre and the Catholic Princess Margaret. They were to be married in front of the Cathedral, not in it. Coligny, a powerful Huguenot was also in Paris for the wedding. He was walking in the park near his home, and he was fired upon from ambush. He notified the King and Catherine and they sent Paré to treat him. Paré amputated the two injured fingers, also treating his arm wound, and decided to spend the night with him. Catherine and the King visited Coligny and pretended to be very disturbed over the incident. That same evening the decision was made by the misguided, half-mad King to have all Huguenots killed. When the signal was sounded Paré and the Admiral's secretary and his servant escaped over the house-tops.<sup>1</sup> The King requested that Paré should be saved, so he was sent for and arrived at the Louvre, coming in a round-

about way at mid-day. The King asked him if he did not want to be converted to Catholicism. "By the light of God, Sire, I replied, I believe that you will remember having promised never to demand of me four things, to wit, to enter again into the womb of my mother, to take care of myself on the day of battle, to quit your service, and to go to mass." The King admired Paré so much that he hid him in his wardrobe until the massacre ended.<sup>8</sup> The death toll during this senseless episode is numbered at from five to thirty thousand.<sup>1</sup> The King became more and more distraught and later died of pulmonary tuberculosis. Paré performed the autopsy, but made no report of it. The newly named King, Henri III chose Paré to be his Premier-Surgeon and Councillor.<sup>3</sup>

It was during this busy time in his life that Paré took time to attend a series of three lectures by Bernard Palissy, the famed ceramist who was working on the decorations for a new palace for Catherine.<sup>3</sup>

It was in this year also that Paré put the finishing touches to his greatest book, "Oeuvres," which he dedicated to the King. The book was the pride and joy of Paré. He had taken much care in its preparation, it was on good paper, he had good printers, fine woodcuts, and although more than half of it had already been published in earlier works it contained his care of gunshot wounds, which is still of more than passing importance.<sup>10</sup>

The book was subjected to much ridicule by the Faculty of Medicine as they wished to suppress its publication. Under a



law written in 1533 they had the right to review and censor any book written on a medical subject. Gourmelin, Dean of the Faculty tried his best to suppress the book, but he was not successful because Paré was a favorite of the Royal House. Paré wrote a fifteen page pamphlet in defense of the material in his book in such a forthright, honest manner that he apparently won a victory. At least he was not defeated since the book was published in its entirety and sold out in a very short time. He refused to delete the passages objectionable to the Faculty in his next edition, but he dispersed them throughout the text. He defended himself by saying he was writing in his native language as Galen and Hippocrates had in theirs; that he had given credit to the ancients for their teachings; and credit to his contemporaries who had contributed approved treatments for the good of the patient; that he had always worked for the good of his country and for the young surgeon; and that some of the mysteries of surgery were explained so that the patient would be treated on a sounder basis.<sup>3</sup>

The years passed quickly now, with much research, getting the "Oeuvres" ready for the next printing. It was again submitted to the Faculty, but they decided they could not censure a book until it had been published, and so he had it printed in 1579.<sup>3</sup>

During June and November of 1580, sixty thousand people died of the plague in Paris. Paré was called into consultation by the Faculty of Medicine and with their permission he was granted the privilege of having a revised edition of his 1568

"Traicte de la Peste" printed. This book was reasonable in price, small enough to be carried easily, and included a warning that plague patients should be segregated. This brought about the origin of the "pest-houses," or hospitals for treatment of those afflicted with contagious diseases. Most of the people of Paris who could afford it left the city until the plague subsided, and we find that Gourmelen was one of those who left. He had his own book on "Surgery" printed in which he criticized Paré because of his use of ligatures in amputations. This so infuriated Paré that he started to add to his planned fourth edition of his "Oeuvres," "The Apology, and Tract containing the trips made to various places." In 1581 Gourmelen had also written an essay on how to treat the plague and Paré felt that this was just a bit too much, since Gourmelen was one of those who had left the city during the plague.<sup>3</sup>

It was in 1585 that Paré saw the last of his books through the printers hands. This book contained much historical data, chapters on ligature, disarticulation, and for the first time in his book the motto, "Je le pensay, Dieu le guarit," (I treated him, God healed him). Paré said that this book was entirely his own and the innovations he adapted from the ancients had been tested in the field, and by time.<sup>10</sup>

Paré did not limit his practice to surgery alone, as he also was called as a consultant to help unravel the mystery of sudden or unexplained deaths. A most graphic incident is quoted to show his great powers of observation.

"In the yeare of our Lord God 1575, the tenth day of May, I with Robert Greanline Doctor of Physicke, was sent for by Master Hammel an advocate of the Court of Parliament of Paris, to see and shew my opinions on two of his servants, of whom the one was his Clarke, and the other his Horse-Keeper. All his family supposed them dead, because they could not perceive or feele their Arteries to beate, all the extreme parts of their bodyes were cold, they could neither speake nor move, their faces pale and wanne, neither could they bee raised up with any violent beating or plucking by their haire. But I presently enquired whether there had beene any fire made with Coales in the house lately whereunto their master giving care, sought all about the corners of the chamber (for the chamber was very little and close) and at last found an earthen panne with charcoale halfe burned; which when we once saw, we all affirmed with one voyce, that it was the cause of all this misfortune, and that it was the maligne fume and venemous vapour, which had smothered them, as it were by stopping the passages of their breath." 14

Paré details the treatment for monoxide poisoning, and in the above incident the men were successfully revived.

Paré devised various appliances for replacing lost parts of the body and his suggested apparatus for lost eyes was as follows:

"If that when you have perfectly cured and healed the ulcer, you may put another eie artificially made of gold or silver, counterfeited and anamelled, so that it may seem to have the brightness, or gemmie decencie of the natural eie, into the place of the eie that is so lost. But if the patient bee unwilling, or by reason of some other means cannot wear this eie so prepared in his head; you may make another on this idea. You must have a string or wier of iron bowed or crooked, like unto women's ear wiers, made to binde the head harder or looser, as it pleaseth the patient, from the lower part of the head behinde above the ear, unto the greater corner of the eie; this rod or wier must be covered with silk; and it must also bee somewhat broad at both ends, lest the sharpness thereof should prick or pierce anie part that it commeth unto. But that end wherewith the emptie hollowness must bee covered, ought to bee broader than the other, and covered with a thin piece of leather, that thereon the colors of the eie that is lost may be shadowed or counterfeited." 13

The religious wars were continuing without end. Henri III

was stabbed and during his final days he asked Henri de Navarre to unite the kingdom. This he tried to do, but found it very difficult because he was a Huguenot. He finally decided to put Paris under seige and starve the people into submission, a task he almost succeeded in doing. Paré asked the Archbishop de Lyon for mercy for the starving people and it is reported that ten days later the seige was lifted and Henri said that Paris was worth a Mass, and he capitulated to the Roman Catholics.

Paré died on December 20, 1590, thus ending a golden age in the surgical world of France for many years. Another age also ended in France and the country was finally united.

## SUMMARY OF PARÉ'S CONTRIBUTIONS

The surgical contributions of Paré are easy to enumerate even after nearly four hundred years, and are summed up by the following sources: the invention of many surgical instruments; made the first exarticulation of the elbow joint (1536); described a fracture of the neck of the femur; was the first to suggest that syphilis was a cause of aneurysm; introduced massage; recognized rickets; used artificial limbs extensively, as well as artificial eyes of gold and silver; described monoxide poisoning (1575); and wrote a fine treatise on medical jurisprudence. He wrote a classic book on gunshot wounds, a treatise on surgery, podalic version, mummy and the unicorn, and his book on monsters covered both land and sea oddities.<sup>15</sup>

Singer sums up the contributions of Paré as recognizing that gunshot wounds were not poisonous and hence did not need to be further burned by boiling oil; that hemorrhage after amputation should be stopped by ligature and not by cautery; and the use of podalic version in abnormal deliveries.<sup>6</sup>

Packard sums up the life of Paré with a quote from L'Estiole, "... surgeon to the King, a learned man and chief of his art."<sup>4</sup>

Hamby feels that his two most important contributions were his writings and the reasons for them had a great deal of influence on the College of St. Come. This in turn inspired many surgeons in other countries to copy his good works, and to adopt his deep concern for his fellow-man, whether of high or low birth.<sup>3</sup>

Ibanez in an editorial says Paré contributed to conservative

surgery by using ligatures instead of cautery, and performing  
a herniotomy without castration.<sup>16</sup>

Shakespeare, a contemporary in England, cried out through  
King Lear, "Let me have surgeons; I am cut to the brains."<sup>17</sup>

Looking back to the times of Paré, he was able to exist during an age when sanitation was poor, plagues and diseases were endemic as well as epidemic, and war was a constant part of life. Religious freedom was decided in a most gruesome fashion, transportation was mostly by horse, child mortality was high, educational opportunities were limited by the teachers as well as by social standing. Envy and intrigue were a daily part of existence. Cadavers were hard to obtain, books were very expensive to have printed and it was difficult to obtain permission from the King and the College of Surgeons to approve them--yet with all these challenges, Ambroise Paré was able to bring onto the canvas of his life a fine portrait of a successful man. He was respected by his peers, did what he most wanted to do and earned a place in history.

Paré contributed much to relieve the suffering of his fellow-man, had the love of his family, and maintained a humble spirit as expressed in his motto, "I dressed him, God healed him."

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My wonderful family who have encouraged me, aided me, counseled and guided me along my paths in education, both in school and religion, and always by example, in the art of living.



## PERSONAL CORRESPONDENCE

Following this page is a letter from Wallace B. Hamby, M. D., who has spent a great deal of time studying about Paré, his time, his life, and his writings. His letter was of great assistance to me in the preparation of this thesis.

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July 11, 1968

Mr. H. Neal Sievers  
1712 South Street  
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Dear Neal:

Thank you very much for your letter of July 7. It was a delightful surprise to get a letter from a Phi Chi brother, the son of another Grand Presiding Senior, who also is interested in my old friend Ambroise Paré!

I assume that you are familiar with Malgaigne's last modern (French) edition of Paré's Oeuvres.

In volume II, page 603-4 is "the 17th book treating of means and artifices of disguising natural or accidental defects".

He shows a picture of an artificial eye, labeled "artificial eyes, shown above and below, which are of enameled gold and naturally colored". Malgaigne makes a footnote referring to prior publications of this material, extending back to 1561.

Paré showed another artificial eye attached to the end of a curved headband with this note "if this artificial eye cannot be kept in the orbit, one can make another sort, shown in this picture. It is made with a flattened, curved, iron spring, covered with velure or taffeta, having a flat tip to avoid injury; the other end should be covered with tooled leather which the painter by his skill should give the appearance of an eye. This done, it is put on the orbit. The said spring can be stretched and fastened like those used by women to hold the hair. This would be put around the head over the ear."

Concerning his description of carbon monoxide poisoning, the case report is given in Malgaigne's third volume, page 661. This was translated in my book "The Case Reports & Autopsy Records of Ambroise Paré," page 151. It refers to people who were found unconscious in

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a closed room containing a burning charcoal brazier. They were resuscitated in open air and he attributed their status to "malignant fumes of glowing charcoal". He, of course, knew nothing of carbon monoxide but realized that the burning charcoal had produced the effects by which he termed malignant fumes.

As I intimated in my letters to Jake Reisch in the letters to the Phi Chi Quarterly, the pursuit of such a hobby as this is a very satisfying thing and I hope that you will continue with it and that you may be able to find the facts to close some of the gaps in our knowledge of Paré's life. There is never an end to things that you find. After I had exhausted all of my resources along this line, another interesting fact came to light quite by accident.

A young French laboratory technician was introduced to me here in the Clinic one day by someone who knew of my interest in Paré. The young man was not a doctor but he said that his mother had always told him that whether he became a doctor or not, he could always say that he had been born "on the rue Ambroise Paré". I knew of no such street, although I had combed Paris pretty thoroughly. I immediately got my maps out and sure enough, up near the north station is a short street running between two hospitals, bearing that name. I have never got around to actually seeing it and getting a picture of the street sign, which I will use for an excuse to make another trip to Paris one of these days.

With my best regards and best wishes for your thesis. If it is not inconvenient to do, please send me a copy of it when you have finished.

As ever,



W. B. Hamby, M.D.

WBH:mp