



# Harvard Classics

THE FIVE-FOOT SHELF OF BOOKS

哈佛经典

38

EDITED BY CHARLES W. ELIOT

## SCIENTIFIC PAPERS PHYSIOLOGY, MEDICINE, SURGERY, GEOLOGY

BY AMBROISE PARE, WILLIAM HARVEY, EDWARD JENNER, ETC.



## Harvard Classics

Contents: Oath of Hippocrates; Law of Hippocrates; Journeys in Diverse Places by Ambroise Pare; On the Motion of the Heart and Blood in Animals by *William Harvey*; The Three Original Publications on Vaccination Against Smallpox by *Edward Jenner*; The Contagiousness of Puerperal Fever by *Oliver Wendell Holmes*; On the Antiseptic Principle of the Practice of Surgery by *Lord Lister*; The Physiological Theory of Fermentation; The Germ Theory and its Applications to Medicine and Surgery; On the Extension of the Germ Theory to the Etiology of Certain Common Diseases; by *Louis Pasteur*; Prejudices Which Have Retarded the Progress of Geology; Uniformity in the Series of Past Changes in the Animate and Inanimate World by *Sir Charles Lyell*.

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*Louis Pasteur in his laboratory*  
*From the painting by Albert Edelfelt*

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## INTRODUCTORY NOTE

HIPPOCRATES, the celebrated Greek physician, was a contemporary of the historian Herodotus. He was born in the island of Cos between 470 and 460 B. C. , and belonged to the family that claimed descent from the mythical Æsculapius, son of Apollo. There was already a long medical tradition in Greece before his day, and this he is supposed to have inherited chiefly through his predecessor Herodicus; and he enlarged his education by extensive travel. He is said, though the evidence is unsatisfactory, to have taken part in the efforts to check the great plague which devastated Athens at the beginning of the Peloponnesian war. He died at Larissa between 380 and 360 B. C.

The works attributed to Hippocrates are the earliest extant Greek medical writings, but very many of them are certainly not his. Some five or six, however, are generally granted to be genuine, and among these is the famous "Oath." This interesting document shows that in his time physicians were already organized into a corporation or guild, with regulations for the training of disciples, and with an esprit de corps and a professional ideal which, with slight exceptions, can hardly yet be regarded as out of date.

One saying occurring in the words of Hippocrates has achieved universal currency, though few who quote it to-day are aware that it originally referred to the art of the physician. It is the first of his "Aphorisms": "Life is short, and the Art long; the occasion fleeting; experience fallacious, and judgment difficult. The physician must not only be prepared to do what is right himself, but also to make the patient, the attendants, and externals cooperate."



## THE OATH OF HIPPOCRATES

**I** SWEAR by Apollo the physician and Æsculapius, and Health, and All-heal, and all the gods and goddesses, that, according to my ability and judgment, I will keep this Oath and this stipulation—to reckon him who taught me this Art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring in the same footing as my own brothers, and to teach them this Art, if they shall wish to learn it, without fee or stipulation; and that by precept, lecture, and every other mode of instruction, I will impart a knowledge of the Art to my own sons, and those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to none others. I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous. I will give no deadly medicine to any one if asked, nor suggest any such counsel; and in like manner I will not give to a woman a pessary to produce abortion. With purity and with holiness I will pass my life and practice my Art. I will not cut persons labouring under the stone, but will leave this to be done by men who are practitioners of this work. Into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption; and, further, from the seduction of females or males, of freemen and slaves. Whatever, in connection with my professional practice, or not in connection with it, I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret. While I continue to keep this Oath unviolated, may it be granted to me to enjoy life and the practice of the Art, respected by all men, in all times. But should I trespass and violate this Oath, may the reverse be my lot.



## THE LAW OF HIPPOCRATES

**M**EDICINE is of all the arts the most noble; but, owing to the ignorance of those who practice it, and of those who, inconsiderately, form a judgment of them, it is at present far behind all the other arts. Their mistake appears to me to arise principally from this, that in the cities there is no punishment connected with the practice of medicine (and with it alone) except disgrace, and that does not hurt those who are familiar with it. Such persons are like the figures which are introduced in tragedies, for as they have the shape, and dress, and personal appearance of an actor, but are not actors, so also physicians are many in title but very few in reality.

2. Whoever is to acquire a competent knowledge of medicine, ought to be possessed of the following advantages: a natural disposition; instruction; a favorable position for the study; early tuition; love of labour; leisure. First of all, a natural talent is required; for, when Nature leads the way to what is most excellent, instruction in the art takes place, which the student must try to appropriate to himself by reflection, becoming an early pupil in a place well adapted for instruction. He must also bring to the task a love of labour and perseverance, so that the instruction taking root may bring forth proper and abundant fruits.

3. Instruction in medicine is like the culture of the productions of the earth. For our natural disposition, is, as it were, the soil; the tenets of our teacher are, as it were, the seed; instruction in youth is like the planting of the seed in the ground at the proper season; the place where the instruction is communicated is like the food imparted to vegetables by the atmosphere; diligent study is like the cultivation of the fields; and it is time which imparts strength to all things and brings them to maturity.

4. Having brought all these requisites to the study of medicine, and having acquired a true knowledge of it, we shall thus, in travelling through the cities, be esteemed physicians not only in name but in reality. But inexperience is a bad treasure, and a bad fund to those who possess it, whether in opinion or reality, being devoid of self-reliance and contentedness, and the nurse both of timidity and audacity. For timidity betrays a want of powers,

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and audacity a lack of skill. They are, indeed, two things, knowledge and opinion, of which the one makes its possessor really to know, the other to be ignorant.

5. Those things which are sacred, are to be imparted only to sacred persons; and it is not lawful to impart them to the profane until they have been initiated in the mysteries of the science.





# **JOURNEYS IN DIVERSE PLACES**

BY  
AMBROISE PARÉ  
TRANSLATED BY  
STEPHEN PAGET

## INTRODUCTORY NOTE

AMBROISE PARÉ was born in the village of Bourg-Hersent, near Laval, in Maine, France, about 1510. He was trained as a barber-surgeon at a time when a barber-surgeon was inferior to a surgeon, and the professions of surgeon and physician were kept apart by the law of the Church that forbade a physician to shed blood. Under whom he served his apprenticeship is unknown, but by 1533 he was in Paris, where he received an appointment as house surgeon at the Hôtel Dieu. After three or four years of valuable experience in this hospital, he set up in private practise in Paris, but for the next thirty years he was there only in the intervals of peace; the rest of the time he followed the army. He became a master barber-surgeon in 1541.

In Paré's time the armies of Europe were not regularly equipped with a medical service. The great nobles were accompanied by their private physicians; the common soldiers doctored themselves, or used the services of barber-surgeons and quacks who accompanied the army as adventurers. "When Paré joined the army," says Paget, "he went simply as a follower of Colonel Montejan, having neither rank, recognition, nor regular payment. His fees make up in romance for their irregularity: a cask of wine, fifty double ducats and a horse, a diamond, a collection of crowns and half-crowns from the ranks, other 'honorable presents and of great value'; from the King himself, three hundred crowns, and a promise he would never let him be in want; another diamond, this time from the finger of a duchess: and a soldier once offered a bag of gold to him."

When Paré was a man of seventy, the Dean of the Faculty of Medicine in Paris made an attack on him on account of his use of the ligature instead of cauterizing after amputation. In answer, Paré appealed to his successful experience, and narrated the "Journeys in Diverse Places" here printed. This entertaining volume gives a vivid picture, not merely of the condition of surgery in the sixteenth century, but of the military life of the time; and reveals incidentally a personality of remarkable vigor and charm. Paré's own achievements are recorded with modest satisfaction: "I dressed him, and God healed him," is the refrain. Paré died in Paris in December, 1590.

# JOURNEYS IN DIVERSE PLACES<sup>①</sup>

1537 - 1569

THE JOURNEY TO TURIN. 1537

**I** WILL here shew my readers the towns and places where I found a way to learn the art of surgery: for the better instruction of the young surgeon.

And first, in the year 1536, the great King Francis sent a large army to Turin, to recover the towns and castles that had been taken by the Marquis de Guast, Lieutenant-General of the Emperor. M. the Constable, then Grand Master, was Lieutenant-General of the army, and M. de Montejan was Colonel-General of the infantry, whose surgeon I was at this time. A great part of the army being come to the Pass of Suze, we found the enemy occupying it; and they had made forts and trenches, so that we had to fight to dislodge them and drive them out. And there were many killed and wounded on both sides,—but the enemy were forced to give way and retreat into the castle, which was captured, part of it, by Captain Le Rat, who was posted on a little hill with some of his soldiers, whence they fired straight on the enemy. He received an arquebusshot in his right ankle, and fell to the ground at once, and then said, "Now they have got the Rat." I dressed him, and God healed him.

We entered pell-mell into the city, and passed over the dead bodies, and some not yet dead, hearing them cry under our horses' feet; and they made my heart ache to hear them. And truly I repented I had left Paris to see such a pitiful spectacle. Being come into the city, I entered into a stable, thinking to lodge my own and my man's horse, and found four dead soldiers, and three propped against the wall, their features all changed, and they neither saw, heard, nor spake, and their clothes were still smouldering where the gun-powder had burned them. As I was looking at them with pity, there came an old soldier who asked me if there were any way to cure them. I said no. And then he went up to them and cut their throats, gently, and without

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<sup>①</sup> The present translation is taken from Mr. Stephen Paget's "Ambroise Paré and His Times" by arrangement with Messrs. G. P. Putnam's Sons.



ill will toward them. Seeing this great cruelty, I told him he was a villain: he answered he prayed God, when he should be in such a plight, he might find someone to do the same for him, that he should not linger in misery.

To come back to my story, the enemy were called on to surrender, which they did, and left the city with only their lives saved, and the white stick in their hands; and most of them went off to the Château de Villane, where about two hundred Spaniards were stationed. M. the Constable would not leave these behind him, wishing to clear the road for our own men. The castle is seated on a small hill; which gave great confidence to those within, that we could not bring our artillery to bear upon them. They were summoned to surrender, or they would be cut in pieces: they answered that they would not, saying they were as good and faithful servants of the Emperor, as M. the Constable could be of the King his master. Thereupon our men by night hoisted up two great cannons, with the help of the Swiss soldiers and the lansquenets; but as ill luck would have it, when the cannons were in position, a gunner stupidly set fire to a bag full of gunpowder, whereby he was burned, with ten or twelve soldiers; and the flame of the powder discovered our artillery, so that all night long those within the castle fired their arquebuses at the place where they had caught sight of the cannons, and many of our men were killed and wounded. Next day, early in the morning, the attack was begun, and we soon made a breach in their wall. Then they demanded a parley: but it was too late, for meanwhile our French infantry, seeing them taken by surprise, mounted the breach, and cut them all in pieces, save one very fair young girl of Piedmont, whom a great seigneur would have. . . . The captain and the ensign were taken alive, but soon afterward hanged and strangled on the battlements of the gate of the city, to give example and fear to the Emperor's soldiers, not to be so rash and mad as to wish to hold such places against so great an army.

The soldiers within the castle, seeing our men come on them with great fury, did all they could to defend themselves, and killed and wounded many of our soldiers with pikes, arquebuses, and stones, whereby the surgeons had all their work cut out for them. Now I was at this time a fresh-water soldier; I had not yet seen wounds made by gunshot at the first dressing. It is true I had read in John de Vigo, first book, *Of Wounds in General*, eighth chapter, that wounds made by firearms partake of venenosity, by reason of the powder; and for their cure he bids you cauterise them with oil of elder, scalding hot, mixed with a little treacle. And to make no mistake, before I would use the said oil, knowing this was to bring great pain to the

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patient, I asked first before I applied it, what the other surgeons did for the first dressing; which was to put the said oil, boiling well, into the wounds, with tents and setons; wherefore I took courage to do as they did. At last my oil ran short, and I was forced instead thereof to apply a digestive made of the yolks of eggs, oil of roses, and turpentine. In the night I could not sleep in quiet, fearing some default in not cauterising, that I should find the wounded to whom I had not used the said oil dead from the poison of their wounds; which made me rise very early to visit them, where beyond my expectation I found that those to whom I had applied my digestive medicament had but little pain, and their wounds without inflammation or swelling, having rested fairly well that night; the others, to whom the boiling oil was used, I found feverish, with great pain and swelling about the edges of their wounds. Then I resolved never more to burn thus cruelly poor men with gunshot wounds.

While I was at Turin, I found a surgeon famed above all others for his treatment of gunshot wounds; into whose favour I found means to insinuate myself, to have the recipe of his balm, as he called it, wherewith he dressed gunshot wounds. And he made me pay my court to him for two years, before I could possibly draw the recipe from him. In the end, thanks to my gifts and presents, he gave it to me; which was to boil, in oil of lilies, young whelps just born, and earth-worms prepared with Venetian turpentine. Then I was joyful, and my heart made glad that I had understood his remedy, which was like that which I had obtained by chance.

See how I learned to treat gunshot wounds; not by books.

My Lord Marshal Montejan remained Lieutenant-General for the King in Piedmont, having ten or twelve thousand men in garrison in the different cities and castles, who were often fighting among themselves with swords and other weapons, even with arquebuses. And if there were four wounded, I always had three of them; and if there were question of cutting off an arm or a leg, or of trepanning, or of reducing a fracture or a dislocation, I accomplished it all. The Lord Marshal sent me now here now there to dress the soldiers committed to me who were wounded in other cities beside Turin, so that I was always in the country, one way or the other.

M. the Marshal sent to Milan, to a physician of no less reputation than the late M. le Grand for his success in practice, to treat him for an hepatic flux, whereof in the end he died. This physician was some while at Turin to treat him, and was often called to visit the wounded, where always he found me; and I was used to consult with him, and with some other surgeons; and

when we had resolved to do any serious work of surgery, it was Ambroise Paré that put his hand thereto, which I would do promptly and skilfully, and with great assurance, insomuch that the physician wondered at me, to be so ready in the operations of surgery, and I so young. One day, discoursing with the Lord Marshal, he said to him:

“Signor, tu hai un Chirurgico giovane di anni, ma egli é vecchio di sapere é di esperientia: Guardalo bene, perche egli ti fara servizio et honore.” That is to say, “Thou hast a surgeon young in age, but he is old in knowledge and experience: take good care of him, for he will do thee service and honour.” But the good man did not know I had lived three years at the Hôtel Dieu in Paris, with the patients there.

In the end, M. the Marshal died of his hepatic flux. He being dead, the King sent M. the Marshal d’Annebaut to be in his place: who did me the honour to ask me to live with him, and he would treat me as well or better than M. the Marshal de Montejan. Which I would not do, for grief at the loss of my master, who loved me dearly; so I returned to Paris.

#### THE JOURNEY TO MAROLLES AND LOW BRITTANY. 1543

I WENT to the Camp of Marolles, with the late M. de Rohan, as surgeon of his company; where was the King himself. M. d’Estampes, Governor of Brittany, had told the King how the English had hoist sail to land in Low Brittany; and had prayed him to send, to help him, MM. de Rohan and de Laval, because they were the seigneurs of that country, and by their help the country people would beat back the enemy, and keep them from landing. Having heard this, the King sent these seigneurs to go in haste to the help of their country; and to each was given as much power as to the Governor, so that they were all three the King’s Lieutenants. They willingly took this charge upon them, and went off posting with good speed, and took me with them as far as Landreneau. There we found every one in arms, the tocsin sounding on every side, for a good five or six leagues round the harbours, Brest, Couquet, Crozon, le Fou, Doulac, Laudanec; each well furnished with artillery, as cannons, demi-cannons, culverins, muskets, falcons, arquebuses; in brief, all who came together were well equipped with all sorts and kinds of artillery, and with many soldiers, both Breton and French, to hinder the English from landing as they had resolved at their parting from England.

The enemy’s army came right under our cannons: and when we perceived