

D. J. LARREY, A SURGEON OF THE REVOLUTION, CONSULATE, AND EMPIRE*

by

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If you drive south across France towards the Pic du Midi, Route Nationale No. 135 brings you to the pleasant but rather decayed watering-place of Bagnères de Bigorre, in the foothills of the Hautes Pyrénées. Some two miles farther on you will see on your right an ancient church, rising above a small village round whose single narrow street the main road sweeps, leaving it like the string across a bow. Leave your car and walk through the village, for it is Beaudéan: I doubt if it has changed much in the last hundred years. Half-way up on the left-hand side is a solid, comfortable, but unpretentious house; its wall abutting the gutter, with faded grey paint and stone-coloured plaster like so many of the small houses of provincial France. Across the road is a small wine shop with a flagged floor. There are three plaques on the house wall. The one on the right reads:

Here was born in 1766 Baron Larrey,
Surgeon in Chief of the Imperial Armies.
C'est l'homme le plus vertueux que j'aie connu.
Testament de Napoléon.

The other:

INFANTS' SCHOOL

Founded in memory of his father by Baron Hippolyte Larrey,
Inspector of the Health Council of the Armies,
Surgeon in Ordinary to H.M. Napoleon III. etc., etc.
In gratitude from the Commune of Beaudéan
August, 1859.

The third, and rather mean, panel bleakly announces:

COMMUNAL GIRLS' SCHOOL

Secularised by the Prefectural Law of August 1902.

This is the birthplace of Dominic-Jean Larrey, who as we are told was Surgeon-in-Chief to the Imperial armies. He was much more than this, for he was a notable practitioner of the Art of Surgery, an innovator of surgical practice, a reformer of the medical service of armies, a historian, and a philanthropist. For Larrey has claims upon posterity on all these counts. In surgery he was described in the nineteenth century as: 'A connecting link between the surgery

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Fig. 1
DOMINIC-JEAN LARREY
(1766–1842)
From a lithograph by Delpéch



Fig. 2

The birthplace of Baron Larrey in Beudéan, near Bagnères de Bigorre, Hautes Pyrénées

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of the last age and that of the present day.' He is a true representative of the pre-anaesthetic and pre-antiseptic era. Not a man of the *salons* or of nice manners, and of much the same social class as Napoleon. A rugged, forthright, common-sense fellow, as one may judge from his autobiography; combining with these qualities great humanity, an immovable rectitude, and an unending and unsatisfied desire to know, to understand, to record, and to teach. He has much in common with John Hunter.

I have used the word autobiography for want of a better, but it is not exact, for Larrey's autobiography consists of his *Mémoires de Chirurgie Militaire*, based upon notes he made throughout his life and his twenty-six campaigns, and published at different times. These constitute a great surgical classic and a contemporary account of the French armies in a momentous historical period.

In fact so much is history, that one is torn between the drama of the period, in which he was sometimes an actor, sometimes a spectator, but always a participator, and what is of more strictly surgical interest. The temptation is there to neglect the latter for the former, but to do so would be unfair to a man whose impact on the surgery of his time is not easy to estimate, but of whose prescience and practical knowledge in surgical matters there can be no doubt, nor can there be two opinions of his stature.

The revolution of 1789 found him, a young man of twenty-three, just back from a voyage to Newfoundland as ship's surgeon in the frigate *Vigilante*, sent by the Government to protect the French fishing interests on the Grand Banks. He had been at sea six months and had had smallpox and scurvy on board. He had dealt with castaways and amputated the feet of some of them for frostbite. His ship had been stayed in the Channel by foul winds and his ship's company reached the verge of starvation. During the whole period he lost only one man and him from drowning.

On his return to France he worked under Desault at the Hôtel Dieu and treated casualties from the early riots of the revolution. In 1792 the Legislative Assembly declared 'War against Kings and Peace with all Peoples', and Larrey was sent to the Army of the Rhine as an assistant surgeon. Custine attacked and captured Spire, and Larrey was much affected by the wretched lot of the wounded. The army regulations kept the ambulance wagons, such as they were, a league in rear of the army, and in any case their movement had to give way to other army transport. At the best the wounded lay out on the battlefield until the next day, when they were collected and removed to some suitable place. The delay might be 24 to 36 hours or even longer, and most of them succumbed for lack of attention. At the worst, if the army retreated they were overtaken and slaughtered by the other side. Larrey conceived and developed the novel idea of light mobile ambulance wagons which should move in the actual area of the fighting, close behind the troops, supply treatment on the spot, and pick up and carry the wounded to shelter and safety. Thus the number of survivors would be much greater, both because they would get early attention and be saved from the disastrous results of long exposure, and because they would be protected.

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Encouraged by his commander, he experimented with light sprung vehicles and when Custine had been replaced (he was ultimately guillotined) he received signal praise from his successor, Beauharnais—the husband of Josephine—and in his turn guillotined—which was reported at a sitting of the National Convention presided over by Danton. He was rapidly rising now, and on peace being made with Prussia his work was interrupted by his being recalled to Paris and sent to the Army of the Eastern Pyrenees as Surgeon-in-Chief (he was only twenty-eight), and at the conclusion of this campaign he was appointed Professor of Anatomy and Operative Surgery at the newly formed Military Medical School of Val-de-Grâce.

Rather more than a year later his real opportunity to complete his work on the ambulances came, with his appointment to the Army of Italy which had just completed its brilliant campaign under Buonaparte. Here, in the lull which followed the truce of Leoben, he completed their organization and laid down their establishment, and at a general review after the signing of the Treaty of Campo Formio Buonaparte inspected the finished units and watched them manoeuvre. Turning to Larrey, he said: 'This work of yours is one of the best ideas of our time; it will of itself establish your reputation.' The result was that when Buonaparte came to organize the expedition to Egypt he obtained Larrey's appointment as Surgeon-in-Chief.

This is not the place to recapitulate the story of that campaign, from which he emerged with an enhanced reputation, for with the conquest of Egypt the Commander wrote to the Directory praising Larrey as a worthy leader of an army's ambulances and soliciting for him a pecuniary reward. There followed the hazardous expedition to Syria, which led to St. Jean d'Acre and Sir Sidney Smith. Returning to Egypt the French met and annihilated a Turkish army that had landed at Aboukir. It was here that General Fugières' shoulder was smashed by a cannon ball and he was visited by Buonaparte at the moment Larrey was about to remove the arm. The general, who had given himself up for lost, handed his valuable sword to the Commander, saying that he would never need it again. Napoleon at once presented it to Larrey, saying that he gave it to the surgeon who would save his friend's life. And so it turned out; Fugières recovered and Larrey carried his sword at Waterloo.

After Abercromby's landing at Aboukir and the French capitulation, Larrey was evacuated to France in the English frigate *Dido*. He was present at Napoleon's coronation and on returning home said to his wife: 'I was very moved when I saw this famous soldier take up the sceptre of kings. Everything tells me that this instrument of tyranny will lead to his downfall and France's ruin.' He was a good republican!

In the earlier campaigns of the Empire, Larrey served as First Surgeon to the Imperial Guard and was in charge of its ambulances. This took him to Austerlitz, Jena, and Eylau—the most desperate battle of them all; fought in bitter cold on the snow-covered surface of frozen lakes, where the French had 7,000 casualties. It was here, as often subsequently, that Larrey's remarkable powers of endurance were so manifest. He operated without ceasing for

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twenty-four hours, when the cold was so great that his assistants could not hold the instruments. He afterwards wrote:

During the whole of this action I was not conscious of the necessities of life; neither hunger, thirst, nor rest. I did not feel the cold which froze the fingers and feet of many of those around me, and my hand never lost its skill on this account.

But let us leave the fighting and consider what sort of a doctor this was. We have to remember that it was a time when there were neither anaesthetics nor antiseptics, and the functions of the bodily economy were ill-understood—Larrey talks of *caloric* and *carbonized blood*, and a *nervous fluid*. Of his drugs only opium, bark, and mercury would not be dismissed with a sneer by a modern pharmacologist! Yet infection, the omnipresent bane of surgery, was well understood. Larrey and others recognized a *contagium*, and in the absence of a *contagium vivum*, yet awaiting demonstration by Pasteur, they looked for something carried by the air—the ward infection that we have just rediscovered—and in the light of the times what could this be but a gas or mephitic vapour? Hence the miasmatic theory of infection, and it was a good working hypothesis. If for miasma you write organisms you realize how shrewd and accurate were the observations.

In dealing with sepsis Larrey worked out for himself the conditions most favouring recovery. Modern text-books tell us that a wound remains comparatively free from infection for at least six hours and probably for eight, and that 'it is almost axiomatic that wounds should not be closed immediately after operation'. These principles Larrey knew, practised, and taught. He insists over and over again on the importance of speedy amputation where amputation is necessary—and this teaching was contrary to the established authority of Faure in France and to that of many other countries. Larrey would operate on the battlefield, as often as not on the ground and under fire, to obtain this advantage. At the British attack on Alexandria he amputated the thigh of General Silly, a man of sixty, and was so absorbed in his task that he did not notice until he had finished that he was deserted by all his assistants save one and that a squadron of English cavalry was bearing down on his ambulance. He put the general on his shoulders and ran for it, picking his way across a field filled with holes for the cultivation of capers, over which cavalry could not follow, and carried Silly safely to Alexandria where he recovered. At Wagram he had a recovery rate of 90 per cent of his wounded, and at the capture of Smolensk, at the beginning of the Russian campaign, he performed disarticulation of the shoulder joint—an operation of his own devising—on eleven men, of whom nine recovered and two died of dysentery. There can be no doubt, I think, that this procedure of speedy amputation avoided the sepsis which might be expected in these complicated wounds as a result of simple delay, and diminished the dangers of implanted sepsis. It is true that the knife was not sterilized, but if we consider the effect of simple wiping and the bactericidal properties of the blood it is not likely to have been a highly infected instrument in these conditions.

Larrey did not close his wounds or attempt healing by first intention, except in wounds of the face. In his amputations he approximated the edges and held them in position by adhesive plasters and bandages, and he roundly condemns and quotes the disastrous results of close suturing practised by Prussian and English surgeons whose patients sometimes came into his hands.

Where amputation was not called for he realized the perils of leaving much damaged and devitalized tissue in wounds and was very thorough in his debridement. To him this meant the excision of all ragged and torn parts, the removal of foreign bodies and fragments of bone, and the transformation of the wound as far as possible into a simple one.

As his surgical experience grew he realized two other great principles which affected his administration of the medical service and his practice. Firstly, the dangers that lurked within hospitals and the surprisingly good results which often followed a minimum of post-operative interference, and, in the second place, the great value of immobilization. Both before and after a battle he exerted himself to arrange for the evacuation of his patients and for their distribution down the lines of communication. He learnt this in Egypt and Syria and applied the principle when he could. The Guard was his special responsibility and he kept their wounded apart from those of other units whenever it was possible. A disastrous experience at Brunn (1805-6), following the battle of Austerlitz, where some of the Line regiments lost more than a quarter of their wounded to typhus and hospital gangrene impressed on him, if this were needed, the dangers of infection in crowded hospitals. The Guard, whose wounded he kept isolated from their comrades, fared much better. In this conviction he had no hesitation in evacuating his wounded, often under the most difficult conditions and with what at times appeared to the uninformed to be hard-hearted ruthlessness, rather than let them stagnate in infected hospitals. He compares the lot of such men, moving over the country with their faces towards home, with that of those left in hospitals and unhesitatingly chooses the former, both on surgical grounds and on the effect of evacuation and movement on the soldier's morale.

The sort of incident which must have encouraged him in this practice occurred at the battle of the Moskowa, where an infantry major whose shoulder he had just disarticulated at once mounted his horse and rode back to France, which he reached three months later with his wound perfectly healed. Perhaps nearer to us is the case of Colonel Lawless who was Professor of Physiology at the Royal College of Surgeons in Dublin. He joined the United Irishmen and fled to France to escape arrest and there became commander of the 3rd Foreign Regiment which was composed almost exclusively of Irishmen. At the crossing of the Bober (battle of Dresden) his left leg was shattered by a cannon ball. Larrey wrote:

As I was with my light ambulance at this advanced post during the engagement, where I was in great danger, I was able to attend to him at once and amputated the leg through the tibial condyles. As the army and the Guard were retiring on Dresden I advised this honourable patient to mount a horse again and make his way to his home in France, without stopping and

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without touching the dressing. I advised him simply to sponge the exterior daily and to keep the stump wrapped in a piece of cloth or sheepskin. By such measures dressings were unnecessary, especially during the season of approaching winter. My advice was followed exactly and the general covered the long journey from the battlefield to his home at Tours on horseback, with his stump carried in a stirrup bandage passed over his shoulders and without having it dressed on a single occasion. On his arrival his health was generally satisfactory and on the dressing being removed the wound was healed with a linear scar.

Lawless lived for many years, attaining the rank of major-general, and died in Paris.

I think he arrived at the principle of immobilization rather later, for he described it in 1821 as a new form of treatment and does not say much about it in his earlier writings, although he refers to its use in speaking of some of his earlier cases. He advocated it for wounds both with and without fractures and insists that the benefits of immobilization are: the prevention of pain, the promotion of healing, and the prevention of hospital and other 'gangrenous affections', by obviating the exposure of the wound to the air. His apparatus is simple, light, solid, and affords continuous compression. Larrey was no lover of elaborate materials. It was his doctrine that the Army Surgeon should be able to improvise whatever he needed from the materials at hand and to obtain these from the resources of the country. Had he not at Smolensk dressed wounds with paper from the town's archives and made splints with the parchments; whilst on the Island of Lobau he had made his men's soup with horseflesh and salted it with gunpowder? He fashioned his *appareil inamovible*, which I shall translate as 'fixed appliance', from the simplest materials. It consisted of two long, stiff cushions made from new straw, rolled in a sheet and fixed one on either side of the limb and padded where necessary with small flattened bags filled with chaff. This is surely the prototype of the 'Edinburgh box-splint' of my student days. With this appliance in position the patient was able to walk on crutches, the foot carried in a stirrup-like sling suspended from the neck. The appliance was to be worn for about seven weeks. It seems to me that we have here the application of principles of ambulant treatment and the closed plaster method so recently made popular.

Larrey accompanied the Grande Armée as Surgeon-in-Chief in the disastrous Russian campaign. At the crossing of the Beresina on the retreat from Moscow, as has so often been told, he returned to the left bank to retrieve some surgical instruments and was caught in the press and panic and like to perish. But he was recognized by the soldiers, who pulled and pushed him along, at times over their heads to safety. He marched with that tragic army to Königsberg where, worn out with fatigue, he developed typhus. He remained Surgeon-in-Chief in the subsequent campaign of Saxony and the battles of Lutzen, Bautzen, Dresden, and the disaster of Leipzig; as well as in the final campaign of France, where in spite of great numerical inferiority the genius of Napoleon in the field was never more manifest and where, although the writing was on the wall, but for the failure of a subordinate at Soissons he might well have had the honours of the campaign.

On the return from Elba, Napoleon recalled Larrey to his old post of Surgeon to the Guard. He left for the frontier with a presentiment of disaster upon him. He was with his central ambulance near the inn of La Belle Alliance on that fatal June evening when the valour of France came draining back from the slopes of Mt. Saint Jean, and as daylight began to fail the raiding cavalry were reaching to his ambulance. He was sent orders by Napoleon to make for the frontier by a by-road, and had gone a mile or two along it when his little band was cut off by some Prussian lancers. Larrey fired both his pistols and tried to force his way through a gap in the hedge, but his horse was hit and he received sabre blows on the head and shoulders. Man and horse came down and he was left on the ground for dead.

The pursuit passed and he recovered consciousness and retrieved his horse, but at dawn when near the Sambre he was captured. He was plundered of his money, ring, watch, and Fugières' sword, his boots and some of his clothing. His build and grey overcoat caused him to be mistaken for Napoleon and he was hurried before the Prussian general commanding the detachment, who realized the mistake and ordered him to be shot. A firing squad was at hand and the medical officer approached to bandage his eyes—he noticed it was with an adhesive plaster. At this moment the doctor recognized Larrey, for he had been one of the Prussian surgeons to attend his course of surgery in Berlin. He at once protested against this act of barbarism, with the result that Larrey was sent to Bülow, who had seen him at Berlin and recognized in this bleeding, barefooted, half-clothed man one of the most famous military surgeons in Europe. He treated his prisoner well, ordered him to be untied, and sent him to Blücher. Old 'General Vorwarts' son had been wounded and taken prisoner at Toeplitz, and his life had been saved by Larrey: he had not forgotten. He treated his prisoner generously, invited him to lunch and presented him with twelve gold *frederics* (since the Prussian officers had robbed him of forty *napoléons* it would seem the balance was still with them!), and sent him to Louvain where he recovered from his wounds.

There followed his return to France and a period of humiliation and penury during the Bourbon restoration and the so-called White Terror. But however rash the *Ultras*, they could not and dared not go too far with the man to whom the soldiers were so attached. Though deprived of some of his offices and most of his pension, he retained his post of Surgeon-in-Chief to the Guards' hospital and the devotion of his old soldiers. Things gradually improved and the publication of the fourth volume of his *Mémoires*, covering the Russian campaign and those of Saxony and France, added to his reputation. He travelled a good deal to study foreign surgery and visited England and Ireland in 1826, where he was very honourably received and made a number of friends. Under the July Monarchy he became Surgeon-in-Chief to the Invalides.

In 1841, twenty-four years after the publication of the fourth volume of his *Mémoires*, Larrey produced a fifth and last, covering his activities in the years that lay between. By this time Louis XVIII was dead and Charles X fled, and the July Monarchy was dragging on halting feet to its close. The ashes of

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Napoleon had returned to France, and on a day of bitter cold the previous December the old surgeon of seventy-five had walked behind the cortège from Courbevoie to the Invalides in the uniform he had worn at Wagram. On that day, three decades earlier, he had performed two disarticulations at the hip, an operation of which he was a notable innovator. Perhaps he thought of them as he followed the coffin, leaning on his son's arm. The wheel had come full circle: it was time to finish the chapter whilst time remained.

But the old war-horse was not done with yet. In the March of the next year, at the age of seventy-seven he asked to be permitted to inspect the hospitals of Algiers, and turned his face again to the south, full of memories of the Egyptian campaign of forty-four years ago and of his dream of a great French colonial empire on the African shore. From March to July he performed this task, and then hearing of his wife's illness turned home. He arrived at Toulon with pneumonia, but with the indomitable spirit that took him from Moscow to Leipzig he pushed on a week later. He refused to stop at Valence and was dying when he reached Lyon, and died the following day: the day the news of his wife's death reached his son Hippolyte, and he was buried the day after her.

Larrey had wished to be interred in the Invalides, amongst the shades of his old soldiers whom he had served so well; and it was his right. But grudging Soult, who had not forgiven his forthright defence of some young conscripts who had been accused of self-mutilation at the battles in Saxony, and whose lives he had thereby saved, refused. His heart is in the vault of the chapel of the military hospital of Val-de-Grâce, where nearly half a century earlier he had been Professor of Surgery, and in its forecourt is a monument to his memory. He stands on a plinth on the four sides of which are scenes from famous battles in which he served: The Pyramids, Summo Sierra, Austerlitz, and the Beresina. In his hand he holds a document—Napoleon's will:

C'est l'homme le plus vertueux que j'aie connu.

Vertue is a difficult word for us to translate;

A fairer name no Roman ever gave
To stand sole monument on Valour's grave.