Acetozone is practically non-toxic and without irritant effect on mucous membranes, for solutions of five and ten grains to the pint may be freely drunk as a beverage.

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<th>Quantity</th>
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<td>5 grains</td>
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Approximately.

Lecture.

STORIES FROM THE CAMPAIGNS OF NAPOLEON AND WELLINGTON.

By Colonel C. A. BALLANCE, C.B., M.V.O.

During the first seventy years of the last century the art of the practical or pre-Listerian surgeon reached its zenith. I may mention a few names. Guthrie, who gained experience in the Peninsular War; Baron Larrey, the great surgeon of Napoleon's armies; Dupuytren, the great Paris surgeon; Astley Cooper, who first tied the abdominal aorta; Syme, and that master of his craft Fergusson. The great morbid anatomists Auvert, Cruveilhier, Bright, Lebert, Hooper and Carswell, lived through the same period and each has left us volumes of beautiful illustrations of disease. How splendid were their labours, how much we are indebted to them! On the sure foundation laid by such patient pathological investigations the more perfect clinical diagnosis of the present day has been built up, and advances in surgery have in great measure been made possible.

My paper this afternoon is almost entirely composed of extracts from the writings of Larrey and Guthrie. These two great surgeons laid down and practised the principles of the treatment of gunshot wounds which are in many phases of our work a sure guide to us at the present time. The examples which I shall quote from their experience will often bring to your minds similar cases which we have had to treat in Malta. Both men worked very hard and both were often in a very tight corner.

1 A Lecture delivered in the Council Chamber of the Valletta Palace on May 12, 1916, to the Medical Officers of the Malta Command.
When I first entered the profession the surgery of Larrey, Guthrie and other great practical surgeons held the field. The discoveries of Pasteur and Lister had not yet permeated the profession. Since that time I have lived through and been a witness of the wonderful changes and advances which scientific surgery has won over disease and injury in every part of the human body.

The Great French Surgeon, Baron Larrey.

Baron Larrey was a prominent surgeon before Napoleon rose to power. In 1788, before the war with England, he visited Newfoundland as surgeon in a French man-of-war. In order to reach his ship he walked from Paris to Brest. When at Newfoundland he made his first acquaintance with the English, of whom he wrote: "We were astonished at the beauty of the English women whom we met in the course of our walk; almost all were of good stature, well developed and with good figures, pretty hair, pleasant faces, bright eyes and surprisingly white teeth. In some, chestnut hair and eyelashes contrasted agreeably with large blue eyes." On visiting an English man-of-war and witnessing a display of drill and gunnery, given in honour of the visitors, he wrote: "All these manoeuvres were remarkable for their precision and rapidity. I derived great pleasure from visiting this ship, where the most perfect order and the most scrupulous cleanliness prevailed. We sat down to table at noon with the officers and midnight found us still united. Nearly all the English officers spoke French well enough for us to follow the conversation. The Captain had been with Cook in his last voyage around the world, and related to us several of the adventures of this renowned traveller and the manner of his death."

The return journey to France commenced on September 27, and ended on October 31. Bad weather was met with, and there was a shortage of provisions and water. "There only remained a little brandy and one cow in calf, very thin." A Danish ship which was hailed with signals of distress made all haste to get away.

Larrey's advice for keeping the crew in health was good food, cleanliness of the ship, and exercise except during the hours actually devoted to sleep.

He issued Instructions for Restoring the Apparently Drowned.

"I have the patient, he wrote, laid on a mattress in front of a large fire. The clothes are removed, and the body is rubbed unceasingly with warm flannel. I pump in air with a bellows into one nostril while holding the other tightly closed; then I compress the chest and abdomen to drive it out. I put a little warm spirit into the mouth and stimulate the pharynx and nostrils with a feather impregnated with ammonia. I have an enema of warm decoction of tobacco given, and take care to have all aspects of the body turned in succession to the fire in order to warm them
equally and to avoid burns. Bleeding from the jugular is sometimes useful. Emetics and opening the trachea are useless. I continue the effort to resuscitate for about six hours.” The use of the bellows reminds me that when I was a student I more than once witnessed the attempt to reduce an intussusception in an infant by means of the kitchen bellows, the nozzle of which was introduced into the rectum.

Larrey accompanied Napoleon on most of his campaigns, including that of Egypt and the retreat from Moscow. The ship on which he had placed most of his stores for the Egyptian campaign was captured by the English on the way out. He observed on the ceilings and walls of Egyptian temples bas-reliefs of amputations performed with instruments very similar to those of his own day. He found also representations of other surgical operations and other surgical instruments in hieroglyphics, by which, said he, “We see that in those ancient days surgery was as much advanced as the other arts, which seem to have been brought to a high degree of perfection.”

Larrey advised and practised free incision for hepatic abscess, which he had probably read about in the writings of Jean Louis Petit, a famous French surgeon who died in 1770. He successfully treated some cases of gunshot wound of the intestines. He was, however, much troubled with various diseases and complications. Tetanus, ophthalmia, and plague all required his attention. On one occasion seventy out of a garrison of 300 died of plague. He fully appreciated the danger of sepsis in hospitals as they then were, and when he could he sent his patients right away, however bad they were, the same day, after even severe operations; for he found that in spite of rough transport they did better, whether in the heat of Egypt or the rigours of a Polish winter, when out on the road than when shut up in churches or hospitals. Larrey was so popular among the soldiers that on being recognized in the mass of struggling men on the bridge over the Berisina, he was handed on from soldier to soldier until he reached the other side.

Larrey met with several cases of external anthrax in Egypt, which he treated by removing the gangrenous pustule and applying liquid caustics to the wound. He was much struck by obtaining muscular contractions on stimulating the nerves of an amputated limb. “The results of these experiments,” he writes, “led me to hope that electric stimuli applied to the nerves of paralysed limbs would recall them to activity and re-establish their functions.”

When he went to the army in Spain he found the two chief surgeons much advanced in age, and one of them nearly blind. He thought this was very wrong.

He gives a Description of a Mine Explosion in his First Campaign.

“The enemy (Spaniards) blew up two of his redoubts which our soldiers had just entered. One can imagine no more frightful spectacle
than this explosion. More than a hundred of our volunteers were within the fortifications when the mines were exploded; they were all blown up with the remains of the stone battlements and of the guns which defended them. Fragments of the artillery, stones, men, or bits of their limbs were carried away pell-mell by the explosion, and fell here and there from a more or less great height."

After this explosion he had four cases in which he amputated two limbs; all recovered, although much burned.

His departure for his next campaign having been postponed, he was detained at Toulon. He utilized the time by giving a course of instruction to the surgeons and students. "Every lecture on anatomy and physiology," he writes, "was followed by illustrative experiments, and all the bodies from the naval and military hospitals were devoted to anatomical preparations and operative surgery." During this time of waiting he also practised in Toulon and the surrounding country.

Larrey gives a Description of Malta.

"The whole island is very well cultivated, although the subsoil is hard limestone. It is mountainous, intersected by small valleys, where the rainfall lodges and the water remains for a greater or less time, and so adds to the fertility of the garden soil, which has been produced on the surface of the rock by labour and manure. The island is covered by terraces of varied shape and size, arranged somewhat like an amphitheatre, and scattered about are very handsome country houses. The table-lands are so many gardens of orange trees, lemon trees, citron trees, fig trees, and most of the fruit trees of Europe. The gardens are planted with the choicest and most beautiful flowers. A great part of the island is devoted to the cultivation of cotton, saffron, and a small quantity of corn and other grains. Nopal, i.e., the cactus, grows wild, and much advantage might be derived from this plant if the cochineal insect were attracted to it. The chief town of Malta is in the middle of the island, and reaches up to the highest point; it is surrounded by impregnable ramparts, and flanked by rows of towers bristling with cannon. The city of Valletta is well built, and the roads to the harbour well kept up. There are several fine palaces, beautiful churches, and a splendid hospital where we placed the few wounded that we had during the siege. The harbour is divided into several basins or canals, very deep, and large enough to take men-of-war; the height of the surrounding rocks shelters them from storms. Our fleet stayed there two days.

"The air of the island and of the town is good and pure, particularly when the wind comes from the west, which is the case for three-fourths of the year, the west wind is cool and moist, it mitigates the burning heat of the day but the dampness renders it injurious at night; the humidity is so great that on remaining out of doors for one hour at night one gets as wet as if in a smart rain. The south winds blow during March, April
and May with some intervals. These are ill winds and favour septic diseases, and during this season the invasion of plague is most to be feared. There is only one source of water for the town and port, the water is good and very clear; cisterns to catch rain water are hollowed out of the rock, this is used for domestic purposes and irrigation.”

Camel Broth.

In Egypt on some occasions Larrey was in great straits for food for the wounded. On one occasion he could not get any meat to make soup for his patients so he asked General Reynier for camel meat. “The General gave orders that all camels unfit for service on account of wounds should be reserved for the use of the sick. The meat and the soup made from it were nutritious and quite palatable. But, unfortunately, this supply did not last long, and we were soon obliged to replace camel meat by horse flesh, which is much inferior.”

Plague.—State of One of the Forts he had to deal with in Egypt.

On the fort being taken he was sent to render it fit for occupation. “I first sought for the sick and wounded which the enemy had left and found about fifty in the basements without light or fresh air, lying on heaps of putrid rags, without bed coverings and covered with vermin. These unfortunates had received no medical attention, nearly all had no dressings on their wounds, which were gangrenous and full of worms. Some had all the signs of malignant fever, one had a plague bubo in the right groin and another bubo on the leg. The courtyards were choked with human corpses and the bodies of dead animals, especially horses, already putrifying; the soldiers quarters were littered with rags and all sorts of infected and insanitary objects.”

Hepatic Abscess.

Larrey had several recoveries, one with communication with pleura. He advised free incision. “The integument is incised in a suitable direction, the muscles and the aponeuroses are divided in the same direction and the abscess is incised to a proportionate extent at its lowest point, care being taken not to disturb the peritoneal adhesions, lest the pus escape into the peritoneal cavity or the intestines protrude. The opening can be extended as far upwards as necessary, or if the cavity is deep, a counter opening can be made.”

He relates a case of spontaneous recovery by the abscess bursting into the bowel, but says that such an unusual occurrence must not deter the surgeon from intervention. He also wrote on leprosy, elephantiasis and scurvy, which he observed in Egypt.

Venereal Disease.

There was a serious outbreak in the French army in Egypt. “It was difficult enough to stop the effects of this contagion. In order to remedy
this inconvenience and to stop the spread of syphilis, I proposed to the General the establishment of a civil hospital for the reception of prostitutes affected with venereal disease, and also pregnant women of the same class, so as to prevent the abortion which they habitually induced and to preserve the lives of their children. A large house favourably situated was obtained, where all women suspected of disease were taken, and those found infected were detained and treated with the greatest care. At the same time also a vigorous inspection was made in all the barracks and all infected soldiers were sent to the military hospital and there detained until cured. These measures proved efficacious."

Un-united Fracture.

Larrey did not approve of the treatment proposed by some authors and carried out by several distinguished practitioners, which consisted in exposing the broken ends of the bone, resecting them, placing them in apposition and fixing the limb in an apparatus until union took place. A successful result, he says, is too rare, and he only knew of two instances; one by an English surgeon and one by a French surgeon. "When not able to obtain union the treatment should be abandoned to nature. The patients become accustomed to the deformity, the effects of which diminish with time and exercise."

Clean Dressings.

He is very emphatic about this. He advised that "charpie should be made from new material, beaten and washed."

Embalming Bodies.

He gives a description of the methods of preparing mummies and directions for preserving bodies. The method he advised was soaking the body in a strong solution of mercurial chloride and drying it by heat. "Two glass eyes are then introduced between the lids of the retracted globes, the hair is suitably dyed and the body is painted all over with a lightly coloured varnish, which gives a life-like and fresh appearance to the skin. Thus may be preserved for thousands of years the remembrance and the features of heroes or great statesmen."

The Defeat of the French at Aboukir.

"The signal for battle was given at 4.30 a.m., our columns were set in motion and marched calmly but with determination upon the English entrenchments. The intrepid bravery of our soldiers from the first moments promised victory, and our brave troops would no doubt have conquered had not a series of untoward events, which occurred during the battle and about which I can form no sure judgment, disturbed the order of the fight and arrested their impetus when they had already taken the first entrenchments."

"General Roize was striking terror into even the most distant ranks of
the enemy, when a cannon ball struck him dead in the midst of his soldiers. This misfortune compelled our troops to fall back and soon the whole army was in retreat."

A Difficult Retreat from Suez.

"The fear of being murdered by the troops of the Grand Vizier, compelled us after one day’s march in the deserts of Suez to leave the ordinary route and we entered a valley called the ‘Valley of the Lost Way,’ into which we penetrated with a view of returning to Cairo by the way of Upper Egypt. Not one of us had ever traversed these deserts, of which we hoped every moment to see the end, but it was in vain. We marched for two and half days over unknown paths, without finding any water to quench the thirst which was tormenting us, and without seeing any trace of human beings. Our provisions were all consumed and we began to despair of ever reaching Cairo. Twenty-one out of 100 persons of our party had already died of thirst, heat and fatigue; seven of these were French. Many animals died in the first few days, and we lost more at every step; at last when despair had maddened many of us, we saw an Arab in the distance, coming towards us, and we hastened, purse in hand, to meet him and begged him to guide us to Cairo by any way by which we could quench our thirst, for we could no longer stand against it. After making known to us our error, and the country we had come through, he took the purse, stroked his beard, and promised to guide us to the capital. We marched on between fear and hope all the rest of that day. Exhausted by want and fatigue we had to stop every quarter of an hour. As night commenced our faithful guide came upon the spring which he had promised to find for us, and we all came to it to drink and fill our water bottles. We could now see Cairo in the distance and reached the city on the second day."

Visit to the English Camp.

After the capitulation of Cairo, Larrey visited the English hospitals. "These ambulances were very well kept and provided with all necessary material, and practice seemed to me to be very successfully carried on there, but I was astonished to find that only three amputation cases recovered although many amputations had been done. This proves again the superiority of French surgery over that of other nations, even the most highly civilized."

Larrey was sent home to France on an English ship, the ‘Diana,’ and landed at Toulon.

Projected Invasion of England from Boulogne.

"I had taken all measures necessary to perfect all branches of my service with the Imperial Guard during the sea passage, and after a landing had been effected. The ships resounded with the acclamations of our soldiers who were burning with impatience to set foot on the
The Campaigns of Napoleon and Wellington

enemy shore. It is difficult to express in words how formidable and imposing this force seemed: if we may judge from the movements of the English, they were already terror-struck and seemed unable to avoid the invasion which so sharply threatened them.

"However, amid these preparations, a new continental coalition was formed. . . . France in her turn was threatened. . . . In this short interval the allied fleet proceeding to its station encountered that of Admiral Nelson and the terrible and memorable battle of Trafalgar took place. From that moment all was changed."

Health of Troops on the March.

"Snow and rain had constantly accompanied us on our march right up to Vienna, and the rapidity of the marches never allowed the soldiers to dry their clothes. They were deprived of comforts because the waggons were unable to keep up with us and there was even no regular distribution of rations, except in the large towns. In spite of all these discomforts we had scarcely any sick. On the contrary, it seemed that when we entered Vienna the health of the soldier had become more robust. The adult soldier does not fall sick whatever fatigue he has to undergo in a cold climate, provided he is not subjected to long fasting, especially if he has at intervals a few hours' rest. There is some risk in leaving him in complete idleness at bivouac when he has been marching all day exposed to rain or snow. Plunged in the profound sleep naturally induced by cold and fatigue, his vital forces are enfeebled and in a state of suspension, mucous secretions and cutaneous transpiration are diminished, internal absorption on the contrary takes place with the customary activity, the dampness of his clothes penetrates more easily, and thus arises disease, particularly rheumatism. It is fortunate for the soldier that on arriving at his station, though wet and hungry, he is obliged to seek and cut wood for his fire, and to find meat and vegetables for his soup and to prepare it himself. During this exercise he suffers no inconvenience from wet clothes which soon dry at the bivouac fire. . . . It is, then, necessary for the soldier to bivouac, not only in the interests of the inhabitants of the country but of the soldier himself . . . especially when passing through a country so fertile as Germany, where the soldier has never wanted for bread, meat, vegetables, and beer, a drink much better for campaigning than spirituous liquors which the soldier generally abuses.

"The inhabitants of Germany; hospitable and humane as I found them, helped us in every way." (Rather different now!)

Tetanus.

This disease seems to have given a great deal of trouble. Some cases of recovery are related. Larrey strongly recommends amputation for tetanus. He writes: "The section of the limb made on the first onset
of symptoms cuts off all communication from the source of the mischief with the rest of the body, this section disorges the vessels, puts an end to the dragging on nerves and abolishes the muscular convulsion. These first effects are followed by a general collapse which favours the excretions, disposes to sleep and re-establishes equilibrium in all parts of the body. The sum of the momentary pains caused by the operation cannot increase the existing irritation, and the pains of tetanus render those of the operation more bearable and diminish their intensity, particularly when the chief nerves of the limb at the time of the operation are strongly compressed.

When amputation was not possible he recommended that the actual cautery should be applied to the wound. He must have realized that the source of the poison of tetanus was in the wound.

Nine days after an amputation at the shoulder-joint, symptoms of tetanus occurred and in three days were fully developed; blistering ointment on the wound and large doses of opium had no effect. The actual cautery was applied to the wound. "The application was lively and extremely painful, but it was followed almost immediately by perfect quiet and profuse sweating." The man recovered.

Larrey was without transport for his wounded on one occasion. "Bonaparte ordered that all the horses of the general staff, not excepting his own, should be used for the transport of wounded."

Small-pox.

"It is much to be regretted," Larrey writes, "that while we were in Egypt, we did not know of the important discovery of Jenner."

Typhus.

Larrey met with a severe endemic disease, probably typhus at Brunn. "The fever hospitals were soon overcrowded and the mortality proportionately great. At the same time the epidemic broke out among the Russian prisoners, whom we were obliged to house in great numbers in churches and other large buildings, lastly it spread to the populace and extended along the whole line of communication, even into France."

Aneurysm (non-traumatic).

This he attributed to syphilis, and says it does not occur in men who are engaged on laborious occupations if they lead a sober life, "and no vice circulates in their humours. The syphilitic virus sets up irritation at some point of the arterial inner coat. A sort of latent inflammation is started, the resilience of the arterial inner coats is enfeebled, and as a result of the alteration of the texture the arterial wall yields before the blood pressure." (Quite as good a description of syphilitic arteritis as could be found now.)
Amputations.

"Now that our art has, through twenty years of continual war, been brought to the highest possible point of perfection, we ought to have but one opinion on this subject." Larrey regarded the question whether in gunshot injuries of the limbs amputation should be performed at once, or deferred, as the most important point in military surgery.

"While Faure tells us that after the battle of Fontenoy out of about 300 amputations only about thirty survived, we saved more than three quarter of our amputation cases, although several lost two limbs. We attribute this success: (1) to a better appreciation of the indications for operation and of the most favourable time for operating; (2) to more methodical dressings; and (3) to a more simple, rapid, and less painful method of operating."

In amputations in military surgery he adopted the circular method, and made little or no attempt to unite the wound; suppuration and separation of ligatures were regarded as normal and inevitable, and in a few instances in which the ligature was retained he deliberately removed it.

Larrey recommended immediate operation whenever amputation is necessary. "The first twenty-four hours is the only time of calm reserved by nature, and we must hasten to take advantage of it, as in all dangerous diseases, to administer the necessary remedies."

He gives eight indications for amputation:

1. Limb torn off.
2. Bones fractured with much damage to soft parts.
3. Much loss of soft parts with damage to vessels, even without injury to bone.
4. Fracture with damage to muscles, and chief nerves, even without injury to artery.
5. Fracture with injury to great vessels without external injury (after extent of injury has been verified by incision).
6. Fracture extending into ankle or knee-joint.
7. When a bullet or splinter of shell has passed through a limb and denuded a large surface of bone, even though the soft parts do not seem much injured.
8. When a large hinge joint, particularly the elbow or knee, has been opened. The indication is not so strong in ball and socket joints, such as the shoulder or wrist.

"After the naval engagement of June, 1794, a large number of immediate amputations were done; sixty of these were taken to the Naval Hospital at Brest; all recovered except two, who died of tetanus. But the surgeon of the Téméraire, which was taken by the English, put off operation, which was indicated in several cases, on the advice of the English surgeons, and had the mortification of seeing them all die on the voyage."
In amputating at the hip joint he first tied the common femoral, a precaution which Guthrie despised.

Among the multitude of cases which Larrey records I have time only to mention a few:

**Case of Multiple Wounds, Recovery.**

Seven very deep sabre wounds, two on the shoulders, divided the muscles and part of the scapula, one on the back divided the muscles and two of the dorsal spinal processes. This soldier also had a bullet wound in the chest, with lodgment of the bullet and effusion of blood in the pleura, for which the "operation for empyema" was done. The man recovered.

**Wound of External Carotid.**

"A general's aide-de-camp was struck by a bullet which divided the external carotid at its point of separation from the internal, and where it passes into the parotid. The fall of the wounded man and a considerable jet of blood which spurted from the two openings arrested the attention of two gunners. One of them, a very intelligent man, had the presence of mind to plug the wound with his fingers, and thus stopped the haemorrhage. I was sent for immediately and ran to give help in the midst of bullets and cannon balls. A compressive bandage, methodically applied, to my great astonishment, arrested the rapid advance of death, and saved this officer. This is the first well authenticated example of cure of a similar wound." (Would a compress permanently stop haemorrhage from a divided external carotid? It scarcely seems possible.)

(To be continued.)

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**Current Literature.**

**German Medical Congress at Warsaw.** (Verhandlungen der ausserordentlichen Tagung des Deutschen Kongresses für innere Medizin in Warschau am 1 und 2 Mai, 1916.)

(Continued from page 730.)

Dr. Goldscheider, following on Hünermann, gave some statistics as to the protective value of inoculation. In December, 1914, and in January, 1915, the percentage of mild and abortive cases amongst the uninoculated was fifteen; amongst the inoculated the mild and abortive cases constituted twenty-six per cent of the attacks. With increasing practice of inoculation the percentage of mild and abortive cases of typhoid fever increased, so that during the period, October, 1915, to April, 1916, 69·6 per cent of the cases of typhoid fever occurring in those