On the importance of a knowledge of the elements of practical surgery to naval and military officers / by William Henry Flower.

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ON THE IMPORTANCE OF A KNOWLEDGE OF THE ELEMENTS OF PRACTICAL SURGERY TO NAVAL AND MILITARY OFFICERS.

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One of the numerous branches into which the art of warfare is divided, has for its immediate object the destruction of human life, or, as it may more correctly and perhaps more humanely be defined, the infliction of such injuries as shall disable from further service. This terrible art has certainly held no backward place amid the onward progress which has characterised all departments of human skill and knowledge. Every successive war, nay, almost every year of peace, has added its quota of progress: even within this century, the general increase of the weight and force of the projectiles employed, especially the substitution of the heavy conical rifle bullet for the small round musket ball of the peninsular campaign, has added greatly to the severity and danger of the wounds received in battle.

With this resistless onward progress of the destroyer there has been marching side by side, less obtrusively it is true, but not less surely, a companion art, whose only mission is to alleviate the sufferings and lessen the devastation caused by the other. Almost paradoxical as it may appear, from the time that man first waged war upon, and begun to wound and kill his fellow-men, he has been ready to avail himself of all the knowledge and skill that could be obtained to save and to cure.

We are not, however, at present so much concerned with what may be done by those who are professionally engaged in the practice of surgery, as with what may sometimes be accomplished in the same direction by others.

Addresses have been occasionally given at this Institution upon the advantages of a knowledge of nearly every branch of science known to man, and I think that it is now generally admitted that the more varied and extensive any one's knowledge is the greater will be his powers of application to any particular science, and the greater will be his means of promoting his own happiness and that of mankind in general. This is especially applicable to those occupying the position of most of the members of this Institution, frequently led by their professional duties to situations remote from the resources and enjoyments, cares and distractions of busy life, but still surrounded with food for study and contemplation in the ever present and yet ever interesting, ever instructive works of nature. On these grounds alone the science of surgery in all its branches direct and collateral, including anatomy, which teaches the structure, and physiology, which treats of the functions and actions of the component parts of that wondrous work of God, the human frame, cannot be without interest to every mind endowed with powers of observation and reflection.

But setting such considerations aside for the present, and looking upon

the subject only in its more practical bearings upon the ordinary business of life, it is my purpose to show that there are cases in which, by a little knowledge rightly applied, something may be done towards alleviating the effects of those injuries to which all, but especially those who follow the honourable but dangerous professions of the soldier or sailor, are liable.

But here at the outset a timely warning must be given, that if any one with a smattering of knowledge were to think that he could replace the regularly-educated physician or surgeon, such knowledge would, indeed, be a dangerous thing. To a bystander it may seem a simple matter to dress a wound or set a broken leg, and the best of medical practice may be full of guesses and blunders and uncertainties, painful and humiliating to human reason; but yet many years of labour, reading, observation, and reflection are required to arrive at any tolerable amount of knowledge of this, which I may safely say is one of the most intricate branches of human study. Little indeed, painfully, miserably little, as is our knowledge of and power over disease, when measured by what the imagination would soar to or the heart desire, yet this little raises the educated medical man, when on his own ground, to an immeasurable distance above one who has never passed through the ordeal of a professional education, and places a bar between them which it would be folly to attempt to leap over. There is an amount of knowledge to be obtained by all which will never bring its votaries to this, but on the contrary teach them more fully to value and to appreciate, where they would never hope to supersede.

With the judiciously increased medical staff of both services, and the more general employment of surgeons on ships, in colonies, and rural districts, it can rarely happen now that proper aid cannot be obtained before an illness is of any long duration; but, either in the peaceful occupations of exploring or surveying parties, or in the more dangerous duties of skirmishing and foraging on land, or the gunboat service at sea, accidents happen in which early assistance is of momentous consequence. In such cases the immediate presence of a surgeon can rarely be procured; the poor sufferer placed, perhaps, by the carelessness or ignorance of those around him, in a position of agonizing pain, receives irreparable injury; it may be that his life's blood ebbs away for want of assistance, which it would be in the power of any of his comrades to render, if they had but a little previous instruction. Another important consideration is the satisfaction of not feeling hopelessly lost, of knowing something of the extent of the danger, and that such help as may be obtained is always at hand. The assurance that the presence of a surgeon gives, even where surrounding circumstances render his assistance of very little real value (as I had frequent opportunities of observing in the trenches before Sebastopol), is no mean thing; and the same confidence would doubtless prevail to a great extent, if men who were known to be capable of acting as surgeons in cases of sudden emergence, were to be found in every detachment of combatants, however small.

There will scarcely be time in the limits of this lecture to do more than glance briefly at the principal injuries which may be met with on such services as officers and men in the army and navy are liable to perform, and which may be relieved by prompt assistance from any tolerably skilful and sensible person. It is not intended to touch upon any but

accidents requiring *surgical* treatment; and it must be remembered that all that is said only applies to cases where no surgeon is at hand, and must not interfere with seeking his assistance.

It is well known that, whenever a wound is inflicted on almost any part of the body, bleeding, or as it is called in technical language, hæmorrhage, ensues. If this bleeding is of small amount, but little harm will come to the sufferer; but if, on the other hand, it be in very large quantity, or long continued, it will be the direct cause of the injured person's death. Hence, it has always been one of the first duties of those engaged in the treatment of wounds, to be familiar with the effects of, and also the means of preventing, loss of blood.

In order to render what follows intelligible, it will be necessary to make a brief physiological explanation. The blood, as most people are aware, is sent from the heart to every part of the body, through a system of tubes called arteries : a main artery runs down each limb, and gives off branches, which further sub-divide until they become a set of minute vessels called capillaries, invisible to the naked eye, pervading every tissue of the body in a most delicate network ; these finally collect again into another set of vessels called veins, which, uniting together, end in the two main trunks which bring the blood back to the heart. We have then three sets of vessels from which bleeding may take place: first, the arteries, bringing blood direct from the heart, and which, when cut across, allow it to escape in a forcible stream, often spouting to a distance of several feet, and in a succession of jerks, corresponding to the successive impulses of the heart's action; secondly, the minute capillaries, of which hundreds are divided in every wound, and from which the escape is a mere general oozing of the cut surface; thirdly, the veins, in which the blood, darker in colour, and changed in properties, has lost the vigorous impulse derived from the heart, and runs slowly, so that a steady, but comparatively feeble stream, easily stayed by slight pressure, flows from a wounded vein. These are facts of great simplicity, a knowledge of which every one interested in the economy of the human body may readily acquire, but which are of the highest practical importance in the treatment of accidental hæmorrhage. From them we learn that it is not so much from the veins, nor from the capillary vessels, nor even from the smaller arterial twigs, but only when a considerable sized artery is divided, that we may anticipate severe and rapid bleeding, such as is likely to prove the immediate cause of death unless prompt assistance is at hand.

I believe that, as it was at one time the opinion among surgeons, it is still the impression among others, that loss of blood is the effect most to be dreaded, of wounds received upon battle-fields. But the more accurate observations of recent times, and an increased acquaintance with the natural processes by which bleeding is often arrested before life is extinct, even in extensive wounds, have led to a considerable modification of this idea. In fact, deaths arising from this cause are not very numerous, except in cases where some important part of the trunk, or some very large vessel is opened, in which case the blood would be so rapidly lost that scarcely any assistance would be of avail. The reasons that gunshot wounds of the extremities bleed less than almost any other kind of injury that can be inflicted upon them are curious, and depend upon some peculiar

properties with which arteries are endowed, apparently for protective purposes. One of these properties is great elasticity, which causes them to slip out of the way of a ball, instead of being wounded by it. Bullets may traverse a limb without injuring the great vessels, though apparently passing exactly through their course. Again, in wounds of a very different nature, those made by round shot or pieces of shell, extremely frequent upon the battle-field, the arteries are not cut, but torn across; and it is well known to surgeons that, when this happens, there is usually but little hæmorrhage. The fact is well known; its explanation would require more time than can be allowed in the limits of this lecture. Instances not unfrequently occur (I can recall several within my own experience) in which a limb is carried entirely away, leaving a ragged stump. The end of the great artery may be seen rising in the wound at each pulsation of the heart, but not a drop of blood issues from it, owing to the remarkable process by which, in such wounds, nature closes the breach almost as soon as it is made. Persons who have received such injuries usually die, not from loss of blood, but from the shock to the system, producing an amount of depression greater than the vital powers are able to sustain. If a wound so extensive were inflicted by the clean cut of a knife, blood would flow so rapidly that life would be extinct in a few minutes.

I mention these facts to show that the alarm that has been felt upon this subject, both by surgeons and wounded men, may to a great extent be set aside; but as there are undoubtedly cases in which bleeding does take place so freely as to endanger life, both in the above-named and other kinds of accidents, I will proceed to enumerate the readiest means for arresting it, which will be in the power of any one to adopt. In the first place, simple attention to position, the part being, if possible, raised above the level of the rest of the body, is a thing which should never be lost sight of. In carrying a wounded man to the rear, it may be useful to bear this in mind. One of the most efficient agents in repressing hæmorrhage is cold; it causes the open mouths of the little bleeding arteries to contract, and so prevents the escape of their contents. How frequently is it the practice to cover up wounds with soft warm dressings, to put on bandage after bandage, in the vain hope of staying the flow of the vital fluid; no treatment could be worse. Take away all the coverings, expose the wound freely to the air, or pour a stream of water as cold as can be procured upon it, and the work is done. Of the various substances employed mechanically or chemically to stop bleeding, known by the general name of styptics, I need say nothing here, as they are not of general application, and, except in hospitals, rarely at hand if wanted immediately. The same remark will apply to that most powerful agent the "actual cautery," or heated iron. For all slight cases the simple methods above mentioned will suffice. If an arterial trunk of any size is wounded and bleeding, nothing but the "ligature" of the vessel will make an effectual cure. This is done by seizing the cut end of the artery with the forceps or tentaculum (a sharp hook for the purpose), drawing it a little way from the surface of the wound, and tying a piece of silk firmly round it. This proceeding can of course hardly be expected from any non-professional person, but fortunately the same result can be

temporarily obtained by any method which compresses the artery, so as to obstruct the flow of blood through it, applied either at or above the wounded part. If this should be near to the heart, in the neck for instance, the bleeding point must be pressed upon with the fingers, and kept closed until assistance shall arrive. Should the vessel wounded be very large, and the hæmorrhage profuse, of course the means used must be proportionally prompt and effective. Baron Larrey* relates the case of an aid-de-camp to General Berthier, who at the siege of St. Jean d'Acre received a bullet wound in the neck which opened the main artery, the carotid. One of the gunners, a very intelligent man, immediately seized it with his fingers, and kept the wound closed until the surgeon arrived, and the officer's life was saved. Had there been any hesitation on the part of that soldier the result must have been different. Somewhat similar instances are narrated as having occurred in our own armies in India, by Hennen† and Cole.‡

When the wound is in one of the limbs, it will generally be more convenient to apply the pressure at some part of the extremity nearer to the *heart* than the wound, so as to cut off the flow of blood towards it. As has already been mentioned, a principal vessel runs down each limb, but there are also smaller communicating branches which keep up what is called "collateral circulation," so that even if the main pipe is obstructed or obliterated all nutrition of the extremity does not cease. Our object in applying a tourniquet is generally sufficiently accomplished if we can stop the flow of blood in the main trunk. Now as this vessel lies tolerably deep, and most of the returning venous channels are nearer to the surface, a simple bandage fastened round the limb, without any regard for the anatomical position of the parts, will be more likely to do harm than good, not arresting the flow towards the wound, but impeding its return from it, acting in fact just as the tape bound round the arm does in the operation of blood-letting. Hence, in every form of tourniquet that has been invented, or in the extemporized arrangements for effecting its purpose in the field, the great point aimed at has been to concentrate the pressure upon one particular spot, that where the artery runs, relieving it as much as possible from other parts. This object is effected by means of the *pad*, which, together with the *band* for encircling the limb, and the *means of tightening*, constitute the essential parts of the instrument. To know exactly the best points to apply the tourniquet requires a slight acquaintance with anatomy, but not more than any one may very readily acquire. It may be sufficient for the present purpose to indicate the inner side of the arm, about midway between the shoulder and elbow, and the inner side of the front of the thigh, about three or four inches from the top, as the best positions for the pad, as in these parts the bone, being beneath the artery, gives a firm support against which it may be compressed. The exact situation, which varies slightly in different persons, can always be ascertained by feeling for the pulsation of the vessel. The degree of pressure required is to be measured by the cessation of the bleeding, and of all pulsation in the arteries of the limb below the constricted part; and it must be remembered that the tightening process should only be con-

* Mémoires de Chirurgie Militaire, vol. i. p. 309.

† Hennen's Military Surgery, p. 180. ‡ Cole's Military Surgery, p. 121.

tinued till this effect ensues. If any unnecessary force is employed the soft parts of the limb may be severely bruised. As Hennen justly remarks, "Too great caution cannot be employed in guarding against superfluous and long-continued pressure, and the attendants, as well as the wounded individuals, should be warned to apply as soon as possible to the medical assistants, in order that they may examine the state of parts in which the circulation is confined."

The earliest form of this instrument in use is that called the "Stick Tourniquet," (fig. 1), said to have been invented by Morrell, at the siege of Besançon, in 1674. As it fully answers its purpose, can be made of materials almost always at hand, may be variously modified according to circumstances, and can be very readily applied, it is the one best adapted for emergencies. It consists of a band of webbing (a pocket handkerchief, brace, or scarf, will do as well,) (fig. 2) with a stuffed leather pad; in default of which, a pebble wrapped up in a handkerchief, or a cork, or any similar substance, will answer the purpose. The band is placed round the limb, and tied in an ordinary double knot, the pad being over the artery, while, for the sake of convenience in fastening, the knot is usually made on the opposite or outer side of the limb. Then a stout piece of stick, or anything else that comes to hand, the ramrod of a pistol, or a drumstick for instance, is passed through the knot, and turned several times round, by which means the band may be tightened as much as is required, and the pad pressed down upon the artery. One thing more is wanting to prevent the twisting of the knot hurting the skin over which it is placed. This was accomplished in Morrell's tourniquet by an oblong piece of leather, with slits cut near each extremity, through which the ends of the band were passed, the middle of the leather being interposed between the knot and the skin. In an extempore instrument, a piece of paper folded (fig. 2)

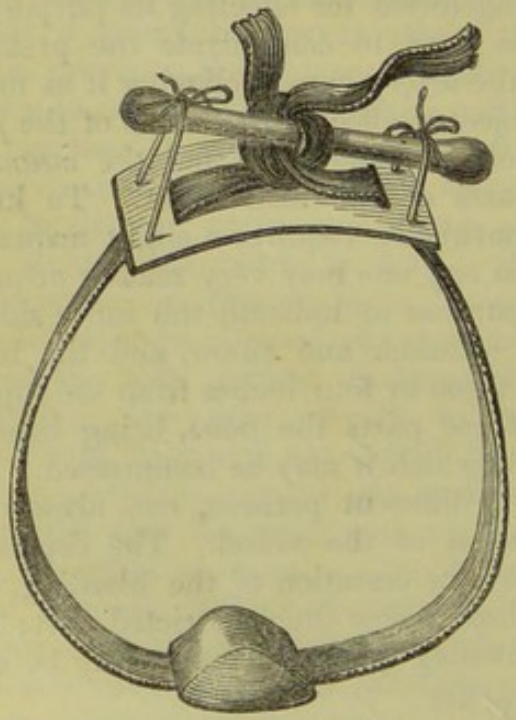

Fig. 1.

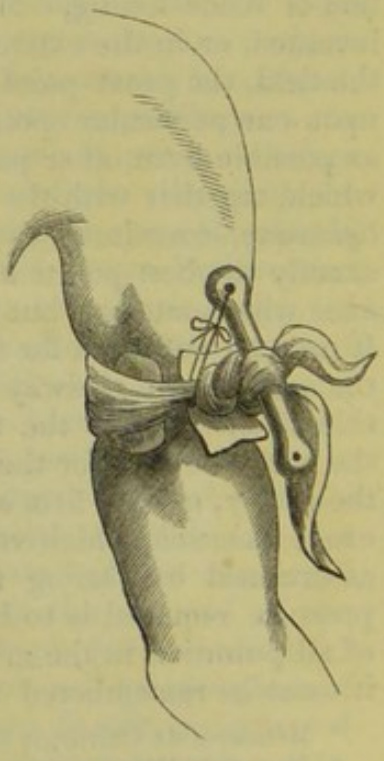

Fig. 2.

and placed under the knot will answer as well. When the stick has been twisted round sufficiently, it must be secured, to prevent its turning back and loosening the band. This is easily done by tying it with a little piece of twine or tape, or with the ends of the handkerchief, or whatever it is that encircles the limb.

Such instruments as these were in common use in our navy during the great war, especially for gun-boat service, the stick for fastening them, called a "toggle," being usually made by the ship's carpenter; it was a piece of tough wood, four or five inches long, and in each end, which was a little thicker than the middle (see fig. 2), a hole was drilled, through which a piece of twine could be passed, and made fast to the band that encircled the leg, or sometimes a tape attached to the leather was used to secure the end of the stick (fig. 1).

In the "field tourniquet" supplied to the army during the Crimean campaign, the band (a piece of webbing about two feet long and an inch and a quarter broad) was passed over two brass rollers, turning in a little frame, to the under surface of which the pad was attached; this being adjusted over the artery, the ends of the band were pulled as tight as possible and fixed by means of three spikes on each side of the frame. This instrument occupies very little space in packing; its disadvantage is that pulling by the hand is not always sufficiently powerful to produce the requisite degree of pressure, the "toggle" being in this respect far superior, and in most that were made the pad was much too small, at least for the thigh.

The "screw" tourniquet (fig. 3), now furnished with all regulation cases of surgical instruments, both to the army and navy, was invented by

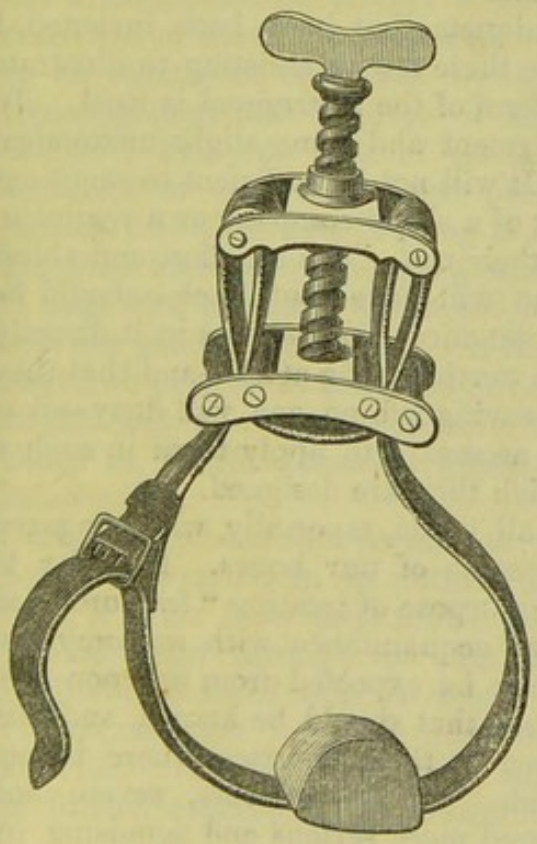

Fig. 3.

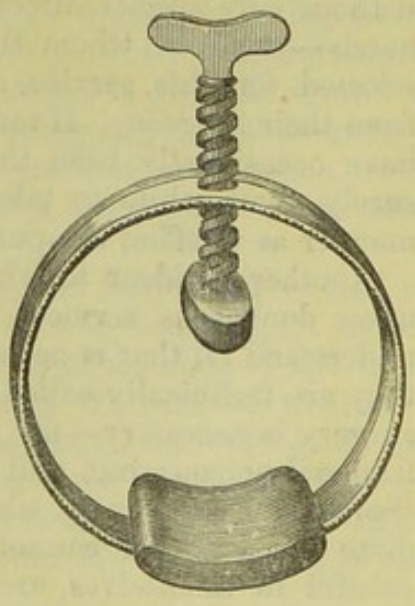

Fig. 4.

Petit in the beginning of the last century, and is on the whole one of the most portable and efficient instruments of the kind. It consists of a band of webbing fastened on to the limb by a buckle, a pad, and an apparatus for tightening, formed of two plates of brass connected by a screw. The band is passed through the plates in such a manner that, as they are separated by the action of the screw, it becomes proportionally tightened. The general principle is the same as Morrell's, the main difference being the substitution of the screw in place of the knot and stick as the constricting force. There is a very convenient modification of this tourniquet invented by Dr. Malan, in which the screw, instead of projecting at right angles from the limb, lies flat upon it, and hence when adjusted is less in the way, and not so likely to be accidentally displaced.

The objection to all of the above-described kinds of tourniquets is, that the band which surrounds the limb presses tightly upon it in every part, and so obstructs the backward flow of blood in the veins. To remedy this, instruments have been invented in which the pressure is confined to two spots—one over the artery, and the other on the opposite side of the limb. The most common of these is the "ring" tourniquet (fig. 4), consisting, as its name implies, of a ring of metal, with a large concave pad for the outer side of the limb to rest against, and a smaller pad for the artery, fixed to the end of a screw which works through the ring. When it is adjusted upon the part, the latter pad is pressed down upon the artery by turning the screw. Although these undoubtedly answer the requirements of a tourniquet better than those in which a band is used; yet their size and inconvenient form, and their liability to get displaced unless constantly watched, render them unfitted for field practice, where convenience and portability are essentials.

Among the endless variety of tourniquets that have been invented, I have thought it worth while to describe these few as assisting to illustrate the principle upon which the simplest form of the instrument is used. To apply even this effectually a little judgment and some slight anatomical and surgical knowledge is necessary. It will not be sufficient to serve out a number of them to any particular part of a ship's company or a regiment, without very special directions as to their use. The steadiest and ablest hands—those in whom the other men will have confidence—should be selected for this service, and receive practical instructions in it directly from their surgeon. If tourniquets are worth having at all—and that they have occasionally been the means of saving life no one will deny—it is surely worth while to take the pains necessary to apply them in such a manner as to effect the purpose for which they are designed.

Another accident to which we are all liable, especially when engaged upon dangerous services, is breaking some of our bones. In order to understand all that is necessary for the purpose of treating "fractures," as they are technically called, an extensive acquaintance with anatomy and surgery is necessary—far more than can be expected from any non-professional person; but still there is much that should be known, and that thoroughly well, by all who are exposed to these injuries, where immediate surgical aid cannot be obtained. "Such accidents, severe and painful in themselves, are often rendered more serious and agonising by the awkward and careless manner in which, with the very best intentions

of those who afford assistance, the sufferer is carried with his limb dangling or rolling about to the nearest medical man." * Great and often irreparable injury is thus inflicted; a *simple* fracture—that is, one in which the bone is merely snapped across without any external wound—is often converted, by the sharp broken end being allowed to press through the flesh, into what is called *compound:* the former merely requiring a few weeks' rest to make an effectual cure, the latter often entailing months of suffering, sometimes causing the loss, or permanent impairment of the limb, and not unfrequently terminating in the death of the patient.

The first portion of the treatment of a fracture has such an important effect upon the ultimate result, that it is the duty of every one who by any combination of circumstances may be called on to practise it, to pay some attention to this subject; and the removal of wounded or otherwise injured persons to where surgical aid can be obtained very often falls to the lot of non-medical officers. In the first place, it is desirable to be able to discover whether a leg or an arm is broken. In ordinary cases this is not difficult—the patient is unable to lift up the limb, and in any attempt to do so by himself or others an unnatural bending and motion are seen at the broken part. If there is any doubt, too much care of course is better than too little. While seeking for surgical assistance, if the injury is in the upper extremity, simply slinging the arm in the position most comfortable, usually with the elbow bent at right-angles across the chest, will be sufficient, and a broad handkerchief, generally at hand, makes the most efficient sling. As fractures of the leg are generally attended with more danger, more care will be required in their management. If the patient has to be moved, be it ever so short a distance, he must be placed upon some sort of stretcher; if a proper one is not to be found, a shutter, hurdle, or an extempore one made by tying wooden poles, oars, or branches of trees together, with a piece of sheeting or blanket stretched over them, will do. The side poles of the stretcher should always be kept apart by traverses or cross-bars fixed near each end, otherwise the weight of the patient will cause him to hang in a very unfavourable position, and bring the poles together to the great inconvenience of the persons carrying them. A man with a broken leg should lie on a surface perfectly flat, and which will not yield to his weight. If there is any distance to go, it is as well to have two persons at each end, all of course keeping step. Hand-carriage in this way is always preferable to any other mode of conveyance, especially in rough countries, where the jolting of a waggon or cart is often insufferable.

Having placed the person on the stretcher, the limb must be laid as nearly as possible in its natural direction; for if the broken part be left bent, it is far from improbable that one or other of the ends of the bone will be thrust through the skin, and a compound fracture be produced. In order to avoid this, it is best to bring the sound limb alongside the broken one, and tie them together with two or three bandages or handkerchiefs; this will give great support, and prevent any movement in it. If further security seems desirable, splints should also be fastened to the

* Household Surgery, or Hints in Emergencies. By J. F. South.

sides of the limb, and nothing will answer this purpose better than those made of straw, a material perhaps more frequently at hand than any other ; a bundle about the thickness of the wrist, and of the required length, is bound together by a piece of cord wound tightly round it. The splint thus made is remarkably firm and light.

Major-General Sir Michael Creagh has informed me of a plan for carrying wounded men, which under some circumstances might be very useful. A single pole eight or nine feet in length, branch of tree, oar, or anything of the sort that can be procured, is laid down beside him, and the man lashed firmly to it from head to foot with handkerchiefs, belts, clothes, or blankets torn into strips, &c.; it is then lifted up and carried on the shoulders of two men, or may even be dragged for some distance with one end resting on the ground by a single man. Rough as this contrivance seems, it has been on several occasions the means of saving life.

Bones, instead of being broken, are sometimes dislocated or put out of joint. It is of great importance that this injury should be remedied as early as possible after its occurrence; even within a few hours the contraction of the muscles becomes so powerful as to render the reduction of the bone difficult; if left several weeks it is often impossible. Dislocations are recognised by the alteration in the shape of the joint, with impaired motion, and pain, and by a change in the direction of the bone. They happen far more frequently in the shoulder than any other joint, as a person in falling down usually puts out his arms to save his face, and throws the whole weight of his body upon this part. There are several methods of reducing this dislocation; one of the readiest is to make the patient lie down either on a couch or the ground, then sit down beside him, placing one of your heels (of course unbooted) into his armpit, grasp his arm firmly a little above the wrist and pull until you feel the bone go back into its place with a little jerk, then cease the extension, bring the arm to the side with the elbow bent, and by means of a bandage keep it at perfect rest for several weeks, otherwise it will be apt to become again displaced.

I would mention as other points that might be attended to, especially by those travelling in remote regions, the treatment of the different kinds of wounds, whether incised, punctured, lacerated, &c., and also of bruises and sprains. In all these injuries the simpler the mode of cure the better; nearly all the balsams, ointments, plasters, and medicated dressings that have been invented are of little more value than were the charms and incantations used by our forefathers. All that is required for most wounds is a piece of wet lint, covered with oiled silk or thin gutta percha to keep it moist, and changed as often as cleanliness requires. Plain water is really the "sovereign'st thing on earth" in these cases.

Burns, scalds, and more particularly frostbite, are accidents frequently met with, and in which much mischief may be done by improper management at the beginning. The same principle of treatment must be adopted in injuries arising from excessive heat as in those caused by intense cold, but exactly reversed; in the one case cooling must be brought about gradually, all the early applications being warm; in the other, cold appliances only can be allowed at first, the reaction being produced but very

slowly. If a frostbitten part is suddenly brought near the fire it will almost certainly be destroyed; whereas if the circulation is gradually restored by rubbing first with snow or cold water, and increasing the temperature by degrees, it may be saved.

Wounds received from venemous animals, especially snakes, produce their injurious effects so rapidly, that no time should be lost in treating them. To prevent the absorption of the poison a bandage should be tied tightly round the limb above the bitten part, so as to obstruct the return of blood to the heart, and the wound may be cut out, or burnt with a hot iron, while the great constitutional depression that usually follows should be combated by the free and early administration of the most powerful stimulants, as ammonia, brandy, &c. It would be highly interesting and often useful to travellers if they were to learn what venemous animals existed in the country they were about to visit, and how they might be distinguished from the harmless species.

The treatment of persons apparently drowned, though not strictly surgical, is a subject of great interest, far too extensive, however, to be entered into, upon the present occasion.

It is not within the scope of this lecture, nor would it be possible in many lectures, to *teach* even the elements of surgery. I can only indicate the above as subjects which appear worthy of particular attention. A practical knowledge of them is the only one of real value. The sight of a few such injuries properly treated would be the best means of gaining this. Any one about to travel into remote regions, could not do better than attend for a few months at the out-patient department of a large hospital, where all the minor accidents are daily treated in such numbers as to afford in a short time specimens of every variety. Of course such an undertaking would not be necessary to officers in the ordinary circumstances of the service, who are now seldom far from the assistance of well-educated surgeons, but even with them a little reading and thought bestowed upon the subject, and a little conversation with, and instruction from, their own medical officer, may be the means of affording in some unexpected moment valuable aid to a suffering fellow-creature.