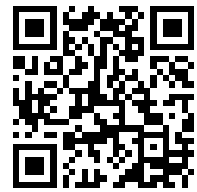

QUESTIONS AND ANSWERS UPON AMBULANCE WORK

DEDICATED BY PERMISSION TO THE

ST. JOHN AMBULANCE ASSOCIATION.

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AMBULANCE WORK.

QUESTIONS AND ANSWERS

UPON

"First Aid to the Injured."

BY

JOHN W. MARTIN, M.D.,

Of Sheffield,

EXAMINER AND LECTURER TO ST. JOHN AMBULANCE ASSOCIATION, AND HON. SEC. TO SHEFFIELD CENTRE;

AND

JOHN MARTIN, F.R.C.S. Ed.,

Of Huddersfield,

EXAMINER AND LECTURER TO ST. JOHN AMBULANCE ASSOCIATION, AND HON. SEC. TO HUDDERSFIELD CENTRE.

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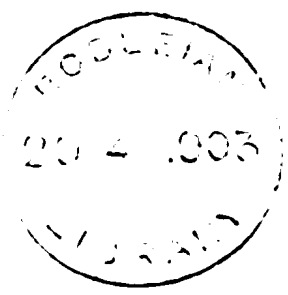

PREFACE TO THE FIRST EDITION.

THE Authors, in compiling the "Questions and Answers" which are to be found in this little book, had the following objects in view. First, to give those lecturers who are unaccustomed to the work a clear idea of what the scope of their lectures ought to include; secondly, to enable students to prepare themselves for their examination upon all the most important points, and so avoid nervousness and the risks of rejection.

This work is to be regarded solely as supplementary to Shepherd's book, which is the text-book of the Association.

The Authors have not attempted, by woodcuts, instruction in bandaging, or questions upon the "Bearers' Exercises," to encroach upon the position so justly held by Shepherd's book. They wish it also to be clearly understood that they do not desire to put these "Questions and Answers" as a limit to the instruction given by the lecturers. Each teacher has his own peculiar method of instruction. No book can take the place of oral teaching. From it alone can the various points of the body necessary to be

known in dealing with hæmorrhage, fractures, etc., be properly impressed upon the minds of the students; also by it alone can students learn the proper application of bandages and splints, and the proper carriage of the wounded.

As far as possible the Authors have avoided the use of technical names in dealing with the various parts of the body. They trust they have fairly fulfilled the objects they had in view, and that the result of their efforts may be to extend and popularise the Ambulance movement, by lessening the fear of examinations and the risks of failure on the part of the students, by which so many are now deterred from presenting themselves to be examined, and to increase the number of names on the roll of those who are entitled to hold the Association's certificates.

Finally, the Authors hope that in what they have written they have sufficiently impressed their readers with the importance of their not accepting any responsibilities which Ambulance instruction does not entitle them to accept. First aid *until*—and *only until*—medical or surgical aid can be secured, is the sole object of Ambulance teaching. If any do more, they run the risk of damaging their patient, their own reputation for good sense, and the general working of the Association.

THE AUTHORS.

PREFACE TO THE FIFTH EDITION.

THE continued and increasing success of "Questions and Answers" is a source of great gratification to the Authors. A fifth edition being called for is sufficient proof of its utility. In the present edition, a section on "Frost Bites" has been added, and additional "Questions and Answers" have been introduced into the following sections: "Sprains and Dislocations," "Burns and Scalds," "Acids and Alkalies," "Drowning," "Insensibility," and "Carriage of the Injured." The rule of the Authors, as far as "First Aid to the Injured" is concerned, has been strictly observed in making these additions. The questions and answers introduced have a thorough practical bearing upon accidents, how to avoid them, and how to treat them until the medical man arrives.

To those who are not within reach of skilled help, such as tourists or travellers in wild districts for sport or research, colonists, captains of vessels at sea, and dwellers in districts where it is difficult to secure the services of medical men, the information given must form a reliable foundation upon which to rest any further knowledge they may obtain in dealing with emergencies.

THE AUTHORS.

March 14, 1891.

PREFACE TO THE SIXTH EDITION.

IN the present edition, additional "Questions and Answers" have been introduced into the chapters upon Hæmorrhage, Poisons, and Choking. To those who are not within easy reach of medical assistance, the Authors hope that it may prove a useful book for reference in cases of emergency.

THE AUTHORS.

January, 1893.

PREFACE TO THE EIGHTH EDITION.

THE Authors are much gratified with the success of "Questions and Answers." They trust it may continue to receive in the future the favour which has been accorded to it in the past.

THE AUTHORS.

January, 1895.

PREFACE TO THE FOURTEENTH EDITION.

THE Authors are greatly gratified with the continued success of "Questions and Answers." The re-casting and enlargement of the official handbook of the St. John Ambulance Association has made it necessary to revise and enlarge "Questions and Answers"; this has accordingly been done. The Authors hope their little book may continue to be received with the same favour in the future with which it has been received in the past.

THE AUTHORS.

June, 1902.

CONTENTS.

AMBULANCE WORK.

BONES.

Q. Of what use are the bones?

A. (1) They form the framework or foundation of the body. (2) They carry and support the softer and more delicate parts of the body. (3) They guard and surround the chief organs of life, *e.g.*, the brain, spinal cord, heart, lungs, etc. (4) They give attachment to the muscles which move the body. (5) They assist in forming joints.

Q. Of what is bone composed?

A. Animal matter one-third, and earthy matter two-thirds.

Q. Of what does the earthy matter chiefly consist?

A. Phosphate and carbonate of lime.

Q. How does the composition of bones vary in childhood and old age?

A. The animal matter predominates in children, the earthy matter in old age.

Q. How would this difference in composition of bones affect the chances of fracture in each case?

A. In childhood bones are not so brittle as in the aged. The bones tend to bend and half break, and the breaking force must be greater. In the aged, a much slighter breaking force will cause fracture, and the fracture will be complete.

Q. Of how many bones does the human skeleton consist?

A. Of about two hundred.

Q. Mention the various kinds of bones and give examples of them.

A. They are divided into four classes: (*a*) Long, *e.g.*, upper arm and thigh bones; (*b*) Short, *e.g.*, bones of the wrist-joint or carpus; (*c*) Flat, *e.g.*, shoulder or blade bone; (*d*) Irregular, *e.g.*, vertebræ or spine.

Q. Into how many parts is the skeleton divided?

A. Three: the head, trunk, and limbs.

Q. Of how many bones is the head composed?

A. Twenty-two; eight for the skull, and fourteen for the face. With the exception of the lower jaw, the bones of the skull are so closely joined together that, for all practical purposes, they may be regarded as one bone.

Q. What bones enter into the formation of the trunk?

A. Spine or back-bone; ribs and breast-bone; pelvic or haunch-bones.

Q. What bones form the limbs?

A. Shoulder-blades; bones of the arm, forearm, and hand; bones of the thigh, leg, and foot.

Q. How many bones compose the spinal column?

A. Thirty-three—twenty-four true and nine false, viz., seven cervical, or neck portion; twelve dorsal, or back vertebræ; five lumbar, or loin vertebræ; five (which are united) sacral vertebræ; four coccygeal.

Q. What structure does the spinal column enclose?

A. The spinal cord or marrow.

Q. What is a joint?

A. The junction of two or more bones.

Q. How would you describe briefly the structures entering into the formation of one of the movable joints?

A. (1) The ends of the bones. (2) The cartilage, by which the ends of the bones are covered. (3) Strong, non-yielding fibrous bands, called "ligaments," which serve to tie the ends of the bones together. (4) The synovial membrane, which lines the joint and secretes the lubricating fluid of the joint, or, as it is commonly called, "the oil of the joint."

Q. How many kinds of joints have we? Give examples of each.

A. (*a*) Movable. (1) Hinge, *e.g.*, elbow and knee;

(2) ball and socket, *e.g.*, hip and shoulder. (*b*) Immovable, *e.g.*, some of the bones of the skull, as frontal and occipital.

MUSCLES.

Q. What are muscles?

A. Muscles, or lean flesh, are bundles of reddish fibres which have the power of contraction under the influence of the will.

Q. How many kinds of muscles are there?

A. Two: voluntary, or striped, as those of the arm and leg; involuntary, or unstriped, as those of the heart, stomach, and intestines.

NERVOUS SYSTEM.

Q. What do you understand by the nervous system?

A. (1) Brain, and nine pairs of nerves—(*a*) cerebro-spinal system. (2) Spinal cord, and thirty-one pairs of nerves. (3) Ganglia and nerves—(*b*) sympathetic or vaso-motor system.

Q. Into how many parts is the brain divided, and what is the special function of the cerebrum and cerebellum?

A. Three, viz., (1) cerebrum, (2) cerebellum, (3) medulla oblongata. The cerebrum is the seat of

the intellect, the emotions, and the will. The function of the cerebellum is to regulate the movements of the body.

Q. What is the medulla oblongata?

A. It is the upper enlarged part of the spinal cord.

Q. If the medulla oblongata is injured, what is the result?

A. Paralysis of the muscles of the opposite side of the body to that which is injured, because here some of the nerve-fibres cross each other.

Q. How many cerebral nerves have we?

A. Nine pairs.

Q. What are their functions?

A. Motor, sensory, and compound.

Q. What do you mean by (1) motor nerve, (2) sensory nerve, (3) compound nerve?

A. (1) A motor nerve conveys an impulse from the brain to some muscle. (2) A sensory nerve receives and conveys an impression or sensation to the brain. (3) A compound nerve contains both motor and sensory fibres, and is consequently possessed of a double function.

Q. How many spinal nerves are there?

A. Thirty-one pairs.

Q. Of what does the sympathetic system consist?

A. A double chain of small nerve-centres, or

ganglia, which lie along the sides of the spinal column.

Q. What is their function?

A. To control the involuntary muscles, and regulate the blood supply, the secreting and excreting organs.

RESPIRATION.

Q. State briefly the structure of the lungs.

A. The lungs are formed by the divisions and subdivisions of the bronchial tubes terminating in minute air-cells, over the internal surface of which is spread a network of capillaries.

Q. Of what use are the lungs?

A. For the purpose of respiration or breathing, to purify the blood, by taking in oxygen and giving out carbonic acid gas.

Q. Into how many stages is respiration divided?

A. Two: Inspiration and expiration.

Q. How many times do we breathe per minute?

A. From fifteen to eighteen times.

Q. What is about the average amount of air taken in and passed out with each inspiration?

A. About 30 cubic inches.

Q. What do you understand by the "vital capacity"?

A. The greatest amount of air that can be expired after a full inspiration.

Q. Describe briefly the act of respiration.

A. (1) In inspiration the chest is enlarged by elevating the ribs and depressing the diaphragm, assisted by the external intercostal muscles. (2) In expiration the chest is diminished by depressing the ribs and elevating the diaphragm. The internal inter costal muscles assist this process.

Q. As the result of the respiratory process, what changes take place in the blood when passing through the lungs?

A. It is purified. The impure venous blood throws out the carbonic acid brought from the tissues, takes in a supply of oxygen, and changes its colour from dark purple to bright crimson, the colour of arterial blood.

CIRCULATION AND HÆMORRHAGE.

Q. How is the circulation of the blood carried on?

A. By the heart, arteries, capillaries, and veins.

Q. What are the *three* special circulations of blood in the body?

A. (1) Systemic; (2) Pulmonary; (3) Portal.

Q. What is the Systemic circulation?

A. The distribution of the pure blood from the

heart through the arteries to the tissues of the body, and the collection of the impure blood from the tissues, and its return through the veins to the heart again.

Q. What do you mean by the Pulmonary circulation?

A. The passage of the blood from the right side of the heart through the lungs to the left side.

Q. What is the Portal circulation?

A. The venous blood coming from the intestines passes through the liver before it joins the venous tide going towards the heart.

Q. Describe briefly the heart, its shape, position and structure.

A. It is conical in shape. It lies behind the middle portion of the breast-bone, with its base towards the root of the neck, and its apex inclining over towards the left side, its point beating against the walls of the chest about two inches below the left nipple. It is a four-chambered organ—two on the right side and two on the left. These sets of chambers are separated from each other by a wall between. On each side the highest chamber communicates with the lower, through a valve-guarded opening. When the blood has passed from the first chamber (the auricle) into the second (the ventricle), these valves close and prevent its return.

Q. Which circulation is carried on by the right side of the heart, and which by the left?

A. The right sends the blood through the lungs, *i.e.*, pulmonary circulation; the left through the body generally, *i.e.*, systemic circulation.

Q. How do the walls of the right differ from those of the left side of the heart?

A. The left are stronger and thicker than the right, having to drive the blood so much longer a distance, and to overcome so much greater an amount of resistance.

Q. Describe the differences between the arteries and the veins.

A. *Arteries.*	*Veins.*
(1) Carry blood from the heart. Is *not* always pure. *E.g.*, Pulmonary arteries.	(1) Carry blood to the heart. *Not* always impure. *E.g.*, Pulmonary veins.
(2) The walls of the arteries are stronger and more elastic.	(2) Not so strong or elastic.
(3) Have no valves except those near the heart.	(3) Have valves to prevent return of blood.

Q. State briefly the composition of the blood.

A. Blood is composed of a (1) Solid part: the corpuscles, red and white. (2) Fluid part: liquor sanguinis—serum and fibrine.

Q. What is the estimated quantity of blood in the body?

A. About one-eighth to one-twelfth of its weight.

Q. Mention a few of the purposes for which the blood circulates.

A. (1) To convey nourishment to every part of the body. (2) To convey oxygen to the tissues which may require it. (3) To warm and moisten all parts of the body. (4) To bring through the veins refuse matter from all parts of the body.

Q. How would you distinguish between arterial and venous bleeding?

A.	*Arterial.*	*Venous.*
(1)	Bright crimson colour.	(1) Dark purple.
(2)	Flows in spurts.	(2) Flows steadily.

Q. Why does the arterial blood spurt?

A. Because the blood is being driven along the arteries by each contraction of the heart, so that the blood-flow in the arteries is exactly like the flow of water from a pump, *i.e.*, intermittent.

Q. If you saw a man wounded, and bright red blood spurting, what kind of bleeding would you think it was?

A. Arterial.

Q. Under what circumstances may you have arterial bleeding without spurting?

A. When the artery is deep-seated, as in the leg.

Q. What might guide you as to the nature of such bleeding?

A. Probably the colour of the blood might be lighter than that of venous hæmorrhage.

Q. How would you deal with such a case?

A. Try the effect of pressure applied above the wound on the main artery; if checked it would show it was arterial.

Q. If you saw a man wounded, and the blood flowing steadily and presenting a dark purple colour, what kind of bleeding would you think it was?

A. Venous.

Q. Which requires the greatest amount of pressure to arrest the hæmorrhage, Arterial or Venous?

A. Arterial bleeding decidedly; the force of the heart's action must be overcome.

Q. What are the capillaries?

A. The finest divisions of the bloodvessels in the tissues of the body, passing between the ends of the arteries and the commencement of the veins.

Q. What takes place in the capillaries?

A. The pure, nutriment-carrying blood from the arteries here gives up its oxygen and nutriment to the tissues, thus feeding the process of combustion that is going on incessantly, and replacing the wasted material with fresh supplies. The carbonic acid and other waste material, the products of combustion, are here

thrown into the blood to be carried forward to the various excretory organs, by which it is purified.

Q. Why does the blood not flow in spurts from veins?

A. Because the blood having passed through the capillaries, it is no longer subject to the pump-like action of the heart. It is simply pressed forward towards the heart by the fresh blood driven through the capillaries from the arteries.

Q. In arresting arterial hæmorrhage, where must the pressure be always made?

A. At some point in the course of the artery *between* the wound and the heart.

Q. If a vein is wounded, where must the pressure be put?

Q. What are the characters of capillary bleeding?

A. It is light red in colour; flows briskly in a continuous stream; it wells up from all points of the cut surface.

Q. How is it best dealt with?

A. By the application of direct pressure.

A. Upon, and *below*, the wound on the side farthest from the heart.

Q. When you have hæmorrhage, what is the best position to place the wounded limb in?

A. Elevated.

Q. How can you best remember the positions of

the main arteries which supply the head as they pass upwards in the neck?

A. They lie one on either side of the windpipe.

Q. Suppose a man had attempted to cut his throat, and, in doing so, had wounded the artery going to the head about the level of Adam's apple, where would you apply pressure to the main artery going to the head on the same side as the injured artery?

A. Press between the windpipe and the muscle which passes from the top of the breast-bone to the bony knob behind the ear, at a point in the neck about an inch above the top of the breast-bone on the wounded side. Make the pressure backwards towards the spine, taking care to avoid pressing on the windpipe. *Put pressure on the bleeding point in the wound.*

Q. If the artery which runs over the temple is wounded, how will you stop the bleeding?

A. Make a hard compress or pad of lint, linen, calico, or paper; place it over the bleeding point; place the middle of the triangular bandage over the pad, having previously folded it into a narrow bandage, and pass it round the head, bringing the ends back over the pad, where they must be tied pretty tightly, so as to secure additional pressure upon the bleeding point.

Q. How must you arrest bleeding if the large artery leading to the arm is wounded in the armpit?

A. First, insert a finger into the wound, and make pressure on the bleeding point on the side next the heart. Secondly, make deep pressure with the padded handle of a doorkey immediately behind the middle point of the collar-bone; the pressure to be made downwards on to the first rib. The artery here passes between the collar-bone and the first rib.

Q. What is the guide to the course of the artery in the arm?

A. The seam in men's coats or ladies' jackets.

Q. Where is the artery at the elbow?

A. In front of the joint.

Q. If there is a wound on the forearm with arterial bleeding, how will you arrest the bleeding quickly, whilst preparing to applv a torniquet?

A. Pad the elbow, and double the forearm upon the arm.

Q. How do you apply a torniquet?

A. Tie a handkerchief or a triangular bandage *loosely* round the arm, placing a pad or some flat hard substance over the course of the artery and under the bandage. Pass a piece of stick or other hard substance of a similar shape under the bandage on the outer side of the limb, and twist until the pressure is sufficient to arrest the bleeding.

Q. If an artery is wounded in the palm of the hand, how is the bleeding to be stopped?

A. Roll up something into a hard ball, place it in the palm of the hand, double the fingers over it, and bandage tightly; or apply two pads over the arteries at the wrist and bandage firmly.

Q. What is the course of the main artery in the thigh?

A. It passes out of the abdomen about the middle of the groin, slightly on the inner aspect of the thigh.

Q. What is a good rule to help you in fixing the course of this artery?

A. Take the centre line and hip line of the body, draw a transverse line between these lines at a level with the top of the hip-bone; bisect this line and drop a line from the point of bisection to the inner border of the knee-cap.

Q. Give another way of finding the artery in the thigh.

A. Drop a line from the middle of the groin to the inner edge of the knee-cap and it will nearly correspond to the course of the artery.

Q. How far down the thigh does this artery run?

A. About two-thirds.

Q. What becomes of it?

A. It passes through a canal on the inner side of the thigh-bone to the back of the knee-joint.

Q. Where are the arteries at the ankle-joint?

A. One runs over the front surface about the middle; the other winds round behind and immediately below the inner bony protuberance of the ankle-joint.

Q. How would you arrest arterial bleeding from a wound in the leg?

A. By the application of pressure, digital (finger) pressure, or by torniquet to the artery in the thigh. If the wound is below the knee, the knee-joint may be padded and the leg flexed upon the thigh.

Q. If there is arterial bleeding from a wound in the sole of the foot, how must it be stopped?

A. Place a pad over the front of the joint and another immediately behind the inner ankle-bone, and bandage tightly.

Q. If a varicose vein bursts, what should be done?

A. Place a graduated compress over the bleeding point, bandage firmly, and elevate the limb. Whilst waiting for compress and bandage, stop the bleeding by pressure with the point of the finger.

Q. In a case of hæmorrhage from the lungs, what should be done?

A. Instantly send for medical aid. Place the patient in an easy position, and keep him or her *perfectly at rest;* allowing no movement or talking, and taking care to remove, as far as possible, all sources of excitement. Be firm and tranquil in manner. Apply

ice if it can be got, or cold water cloths to the chest. Give ice to suck and avoid all stimulants, warm food or drinks.

Q. In the case of bleeding from the nose, must all bleedings be stopped at once?

A. No.

Q. Why?

A. Moderate bleedings are sometimes nature's safeguard to relieve a congested state of the blood-vessels, and so prevent mischief elsewhere.

Q. If the bleeding is at all severe, and prolonged, what ought to be done?

A. Send for the medical man; such bleedings are often most difficult to stop, and are therefore dangerous to life.

Q. Whilst waiting for the medical man, or in treating mild cases, what should be done?

A. Loose everything from about the patient's neck and waist, and make the patient hold the head up and slightly backward. The head must not be held forwards over a basin, or bent forward on the chest. Cold should be applied to the back of the neck by means of a sponge dipped in cold water, a door key, or best of all, if attainable, a lump of ice. Cold may at the same time be applied to the nose itself.

Q. If these measures fail, what may be tried next?

A. If there is a syringe handy, cold water or a

solution of alum, a teaspoonful to a cupful of water, may be syringed up the nose.

Q. If the foregoing measures fail, what next may be tried until medical aid is secured?

A. An effort may be made to plug the nose with some lint dipped in cold water, or old linen, if no lint is at hand. Whatever is used should be pushed gently up the nose by the aid of a pen-handle, or a bodkin.

Q. What must be avoided as far as possible?

A. Blowing the nose, a hurried removal of the clots from the nose, and the administration of stimulants, except where the patient shows signs of fainting. Stimulants must be given in small quantities, and cautiously.

NOTE.—If the patient is in a room, and it is at al warm, don't forget to open the window and allow the air to play upon the head and neck.

Q. What are the signs and symptoms of internal hæmorrhage?

A. (*a*) Rapid loss of strength. (*b*) Pallor of the face and lips. (*c*) Coldness of the extremities. (*d*) Giddiness and faintness, especially when in the upright position. (*e*) Hurried and laboured breathing, with sighing and yawning. (*f*) Failing pulse, tending to disappear at the wrist. (*g*) Very restless, tossing the arms about and calling for air. (*h*) Loss of consciousness.

Q. How would you treat such a case?

A. (*a*) Keep the patient flat, or with the lower

portion of the body higher than the head. (*b*) Undo all clothing round the neck. (*c*) Allow free access of air. (*d*) Fan the patient. (*e*) Sprinkle cold water on the face. (*f*) Apply smelling salts to the nose. (*g*) Give ice to suck, or cold water to drink. (*h*) Bandages may be applied from the feet to the hips, and from the hands to the shoulders. (*i*) Avoid stimulants in all cases of hæmorrhage until bleeding has been controlled.

Q. What are the signs and symptoms of a wound of the lung?

A. Difficulty in breathing, symptoms of collapse, faintness, spitting of blood (red and frothy). Possibly escape of air into the surrounding tissues or into the cavity of the chest. There may be pallor, slowness of breath, blurred vision, feeble pulse, sighing, yawning, delirium and faintness deepening into unconsciousness if internal hæmorrhage continues and the blood is accumulating in the cavity of the chest.

Q. What is the best treatment for such a case?

A. Lay the head down low, give ice to suck, and apply ice over the injured part. Turn the patient towards the injured side. If there are surface wounds apply clean dressings, etc.

Q. In what two directions may wounds of the abdomen be?

A. Vertical or transverse.

Q. What may protrude if the abdomen is opened?

A. The intestines.

Q. If the wound be vertical what is the best treatment to adopt?

A. Lay the patient down flat with the lower extremities straight; cover the wound over by a pad of dry lint or linen, and place a fairly tight bandage round the body.

Q. What is the best treatment if the wound be transverse?

A. Bend the knees so as to relax the tissues of the wall of the abdomen, and raise the shoulders to allow of the edges of the wound coming together; apply a pad and bandage.

Q. What treatment must be adopted if the intestines or other organs protrude through the wound in the abdominal wall?

A. Raise the shoulders; apply either lint, a towel, or a clean sponge (the sponge must be thoroughly clean) wrapped up in soft linen, wrung out of warm water, and keep the part warm until the doctor arrives.

NOTE.—Internal hæmorrhage into the abdomen must be dealt with on the same lines as that into the chest. In all such cases there must be no delay in securing medical aid.

If the patient is in a room, and it is at all warm, don't forget to open the window and allow the air to play upon the head and neck.

FRACTURES.

Q. What do you mean by a fracture of a bone?

A. Breakage of the bone.

Q. Mention the different causes of fracture.

A. (*a*) *Direct violence;* where the bone is broken at the point to which the force is applied, such as a severe blow, the impact of a bullet, or the crushing force of a wheel. (*b*) *Indirect violence;* where the fracture is at some distance from the spot where the force was applied, such as alighting on the feet and fracturing the base of the skull or the thigh bone, or falling on the hand and breaking the collar bone. (*c*) *Muscular action.* The knee-cap or the bone at the back of the elbow are sometimes broken by violent and sudden contraction of the muscles.

Q. How many kinds of fractures are there?

A. Four chief divisions.

Q. What are they?

A. (1) Simple; (2) compound; (3) comminuted; (4) complicated.

Q. What is a **Simple Fracture?**

A. When the bone is broken, but there is no flesh wound permitting communication between the air and the broken ends of the bone.

Q. What is a **Compound Fracture?**

A. One in which, with the breakage of the bone,

there is a flesh wound allowing the air to get to the broken ends of the bone.

Q. What is a **Comminuted Fracture?**

A. One in which the bone is broken into two or more pieces.*

Q. What is a **Complicated Fracture?**

A. One in which the breaking force has been so great as to crush the soft parts (muscles, arteries, nerves), as well as to break the bone. Another example is to be found in the case of a lung, or the heart, liver, or spleen wounded by the broken ends of a fractured rib.

Q. What is the essential difference between a simple and a compound fracture?

A. The absence or presence of a flesh wound permitting access of air to the broken ends of the bones.

Q. What do you mean by a **Green-Stick Fracture?**†

A. A fracture that occurs in children owing to a softer state of the bony tissues; the bone is not completely broken through; it is bent or cracked.

* It may be simple or compound, according as there is presence or absence of a flesh wound allowing access of air to the broken portions of bone.

† In this fracture some of the signs and symptoms of fractures of the ordinary kind are absent.

Q. What is meant by an **Impacted Fracture?***

A. It is one in which the ends of the bones are driven into one another and so fixed.

Q. How would you know a bone was broken?

A. (1) Inability to use the limb. (2) Alteration in shape and general appearance. (3) Unusual mobility at the seat of fracture. (4) Crepitus, or crackling, on placing one hand over the broken part, and creating motion with the other. (5) Shortening of the limb. (6) Some inequality felt on passing the fingers along the surface of the injured limb. (7) Sense of snap or crack felt by the patient. (8) General history of the manner in which the accident happened.

Q. Would you attempt to set a fracture?

A. NO!

Q. What should you do?

A. Merely apply restraining splints to keep the injured limb at perfect rest until surgical aid can be obtained.

Q. Mention some of the things you might use as restraining splints.

A. Walking-sticks, umbrellas, parasols, pieces of board, straw covers for wine-bottles, pieces of band-boxes, card-boxes, straw tied in bundles, stakes from a hedge, twigs tied together into the shape of a splint,

* In this fracture some of the signs and symptoms of fractures of the ordinary kind are absent.

newspapers folded into the proper size, constables' batons, constables' belts, etc., etc.

Q. Is it right that an ambulance pupil should handle a limb, which he thinks is broken, or in which he even suspects a fracture, to obtain the signs of fracture?

A. NO.

Q. What is his duty in such a case?

A. *To fix the limb in restraining splints, and leave it to the surgeon to decide as to whether a fracture does or does not exist.*

Q. When securing the splints, is it right to bandage over the place where the bone is broken?

A. No; the bandage must be applied above and below the break.

Q. When rendering "first aid" in the case of fractures, is it necessary to take off the clothes?

A. No, they act as pads.

Q. In the case of fracture of the thigh bone, what should be avoided when securing the upper part of the long splint, pole, or board, to the body?

A. Not to tie a bandage around the abdomen; the bandages should be placed, one round the chest, the other around the haunch bones.

Q. If, in the case of fracture of the bones of the lower extremity, you have no one to help you, and you have to seek something with which to make a splint, what should you do?

A. Tie the fractured limb in the extended position to the sound one; this acts as a temporary splint.

Q. In all fractures of the lower extremity, when splints have been applied, what is the best thing to do before removing the patient home or to hospital?

A. Tie both legs together. For additional security place a board beneath and fasten the legs to it.

Q. What is the danger in moving a simple fracture carelessly?

A. Might change it into a compound fracture.

Q. If fracture of the ribs be suspected, is it right to make a very close examination; to finger or press upon the ribs much?

A. Certainly not.

Q. Why?

A. Possibly the broken ends of the ribs might be pressed into the lung, and what in the first instance was a simple fracture might be changed into a complicated one.

Q. What should be done?

A. Place the ribs at rest by the firm application of a wide roller bandage, drawn sufficiently tight round the chest to stop the movement of the ribs, and to secure that respiration shall be carried on by the diaphragm and abdominal muscles. The bandage should be broad enough to extend from the armpits to the free borders of the ribs.

Q. If the ribs are broken and there are signs of injury to the lung, such as hæmorrhage mixed with mucus coughed up from the lungs, would it be right to apply bandages, as for uncomplicated fracture of the ribs?

A. NO. Lay the patient down, inclined towards the injured side, so as to allow free play *to* the sound lung; loosen the clothing, give ice to suck, and treat as for 'Hæmorrhage from the Lung.' A bandage might drive the broken bone still further into the lung.

Q. If you were out in the fields, or in some position in which you could not get such a bandage, what could you do?

A. Draw the patient's coat or waistcoat tightly round the chest and secure it.

Q. If you had a case of fracture, in which there was wound of the artery of the limb at the same time, which should you attend to first, the broken bone, or the wounded artery?

A. The wounded artery.

Q. Why do you do so?

A. Because there might be the danger of bleeding to death if the hæmorrhage was not stopped.

Q. If the blade-bone of the shoulder is broken, how would you fix it?

A. By the same means as in the case of fractured rib. Pass a broad bandage around the chest below

rib. Pass a broad bandage round the chest below the armpits; secure it evenly, and as tightly as is consistent with the patient's comfort.

Q. What must be done in cases of fracture of the spine?

A. Make the body as rigid as possible by bandaging long splints, poles, broom-handles, umbrellas, or walking-sticks to it. Slip a sheet or blanket under the patient, and lift the sufferer cautiously and steadily on to a stretcher, regular or improvised. The utmost care must be used in the carriage of the injured person.

Q. If the cap of the knee is broken, what should be done?

A. Elevate the leg by holding the foot up, and place a board, a couple of umbrellas, or walking-sticks, *under* the leg, and secure them by means of bandages.

Q. If you had nothing with which to make an arm sling, how would you improvise one, *i.e.*, make one on the spur of the moment?

A. Turn up the skirt of the coat over the arm and pin it to the breast.

General Rules to be Observed in the Treatment of Fracture.

Q. What is the first object in the treatment of all forms of fracture?

A. To guard against further mischief; especially to prevent simple fractures becoming compound or complicated.

Q. How may this object be attained?

A. By the immediate application of splints and bandages to render the injured part immovable, keeping the joints above and below the seat of injury at rest.

Q. Whilst preparing the splints and bandages what should be done?

A. The injured limb should be steadied and supported to prevent all movement.

Q. What is the treatment to be adopted in a case of fracture of the breast bone.

A. Undo all tight clothing; place the patient in an easy position and wait until the doctor arrives; avoid all sudden movement or rough handling.

Q. What signs would make you suspect fracture of the pelvis?

A. If there has been a crushing force applied to the neighbourhood of the haunch, or pelvic bones, and you find the patient unable to stand or walk,

or possibly unable to move the lower limbs without great difficulty or pain, and the lower extremities are not injured, fracture of the pelvis may be assumed.

Q. What is the proper treatment of fracture of the pelvis?

A. Place the patient in that position which he finds the easiest. Bind a broad bandage round the hips, but not too tightly to avoid pressing the fractured bones into the pelvic organs. Flex or straighten the lower extremities in accordance with the wishes of the patient, and move him with the same care as you would a case of fractured spine.

Q. When you have reason to think that there is a fracture of the base of the skull, a history of a violent blow to the head, followed by bleeding from nose, eyes, or ears, what is the general treatment to be followed?

A. If a scalp wound, try to arrest bleeding by pressure, etc. Place the patient in an easy position to breathe; undo all tight clothing; put the patient in shelter; apply cold cloths or an ice-bag to the head.

SPRAIN AND DISLOCATION.

Q. How does the appearance of a sprained joint differ from that of a dislocated one?

A. There being no displacement of the bones,

they maintain their usual positions and relations to one another. There is no unusual prominence in one direction, or hollow in another. The swelling around the joint is fairly equal in all directions.

Q. What would you do in the case of a sprained ankle if the injury is sustained at some distance from home or any house?

A. The stocking or boot must not be removed; the foot and ankle should be firmly bound round with a bandage, if one is at hand, or one improvised from a handkerchief or strap, etc. The bandage should be passed below the waist of the boot and then crossed in front of the ankle, and then carried round and round the ankle, where it is firmly tied. Wetting the bandage after it has been applied increases its tightness.

Q. How are the boot and stocking to be removed?

A. They must not be dragged upon; if necessary they must be cut away.

Q. What would you do for a sprain?

A. Send for a doctor to be quite sure there was no dislocation or fracture present. Place the part at perfect rest, and resort to warm or cold applications. If warm, bathe the part in water as warm as can be borne, and continue it for an hour and a half or two

hours; then apply large hot bran or other poultices. If cold, apply cold-water bandages, or evaporating lotions. Best of all, wrap plenty of cotton-wool round the joint and bandage tightly.

Q. How may a dislocation be recognised?

A. If the injured limb be compared with the sound one, (1) An alteration will be noticed in the appearance of the joint; (2) Great pain is caused by any effort at movement; (3) Great difficulty is experienced in moving the joint—*i.e.*, there is diminished mobility.

Q. What would you do for a dislocation?

A. Whenever you *suspect* its presence, beyond placing the limb in an easy position, and fomenting the joint well, do not attempt to meddle with it. Let it alone and send for surgical aid.

DROWNING.

Q. How may a person who has not learned to swim try and save himself if he (or she) falls into the water, and is in danger of drowning?

A. (1) By keeping his mouth upwards. (2) BY KEEPING HIS LUNGS WELL FILLED WITH AIR. (3) By not lifting his arms out of the water. The specific gravity of the body is lighter than that of water, therefore the tendency of the body is to float. The fuller the chest is kept filled with air, and the more the body is kept in the water, except the mouth

and nose, the greater is the certainty of its floating. If a person throws himself on his back, sinks the forehead well into the water, fills the chest with air, and spreads out his arms backwards from the body, sinking them well at the same time into the water, he will find it difficult to sink. What is wanted is, confidence in a known scientific fact. To waste the breath in calling for help, and lifting the arms out of the water, is the surest way to sink and hasten the end.

Q. What are the two ways in which death may take place in cases of drowning?

A. (1) When water instead of air enters the lungs. (2) When no water gets into the lungs.

Q. In the second case, how do you explain the absence of water from the lungs?

A. The patient faints; the heart's action and breathing cease; the entrance to the windpipe is closed spasmodically.

Q. Which is the more hopeful case to deal with in trying to restore life?

A. The second.

Q. What appearances are presented in those cases in which water has entered the lungs?

A. (1) Swollen purple face. (2) Livid lips. (3) Bloodshot eyes. (4) Frothy fluid in mouth, windpipe, and lungs.

Q. Do these cases make a long struggle for life?

A. Yes.

Q. What appearances do the second class of cases present in which no water enters?

A. (1) Face pale and flabby. (2) But little frothy fluid about the mouth, etc.

Q. Is it well to consider *all* drowned persons as only apparently dead?

A. Yes, as life may not be extinct even after hours have been passed in the water.

Q. Has life been restored after very prolonged efforts have been made to do so?

A. Yes; many such cases have been known.

Q. What are the chief points to bear in mind in the treatment of the apparently drowned?

A. (1) Send for medical assistance, dry clothing, and blankets. (2) Remove all clothing from about the neck and chest; dry the chest. (3) Restore the breathing. (4) Promote warmth and circulation after the breathing has been restored.

Q. How would you restore the breathing?

A. (1) Place the patient on the ground with the face downwards; place a pad, say a folded coat, under the stomach, fold one arm, so that the forehead may rest upon it. In this position, aided by pressure on the back over where the pad is placed, all fluid will escape from the mouth. Pull the tongue forward, and secure it by an elastic band or piece of string,

fastened over it and beneath the chin, to admit of the air passing into the lungs. The mouth should be cleansed by wiping. (2) Next turn the patient over on his back. If at hand, excite the nostrils with smelling-salts or snuff, or tickle the throat with a feather. If breathing is not at once restored, resort to artificial respiration.

Q. Is it right to hold a person up by the heels, or to place him hanging across a rail to get the water out of him.

A. Certainly not.

Q. Would you wait until you got the patient into a house before beginning the treatment necessary to restore him?

A. Certainly not; treatment, unless in very severe weather, must be begun at once, without waiting to get under cover.

Q. How do you practise artificial respiration by Dr. Sylvester's method?

A. Place the patient on his back, raise and support the head and shoulders by placing under them some article of clothing, allowing the head to fall well backwards. Draw out the tongue, if not already done, and secure it by passing an elastic band or piece of string over it, and fastening it underneath the chin. See that all clothing is removed from the neck and chest. Kneel at the patient's head, grasp the arms just above the elbows, and draw the arms gently upwards above

the head, and keep them in this position for about *two seconds*. Next turn down the patient's arms, and press them firmly for two seconds against the sides of the chest. Repeat this treatment about fifteen times per minute, until a medical man arrives.

Q. If the day is cold, would it not be best to rub the patient well, and so try to secure warmth and restore circulation, before beginning artificial respiration?

A. NO.

Q. Would you, under any circumstances, try to restore circulation before breathing?

A. Certainly not.

Q. Why?

A. Because you would endanger the life of the patient by suffocation. If the process of respiration is not being carried on, and the proper blood-changes are prevented, congestion of the lungs and suffocation must follow.

Q. What do you do when the breathing is restored?

A. Promote warmth and circulation.

Q. How do you do this?

A. (1) Carry the patient to the nearest house. (2) Put him into a warmed bed between the blankets. (3) Rub the limbs upwards under the blanket or dry clothing. (4) Apply hot bottles, flannels, hot bricks, etc., to the arm-pits, between the thighs, and at the soles

of the feet and the pit of the stomach, taking care not to burn your patient.

Q. How should you guard against the risk of burning your patient with the hot bottles, jars, etc.?

A. By wrapping them in flannel.

Q. Has such an accident ever taken place?

A. Yes, frequently, in cases of insensibility.

Q. Must the precaution then be always observed?

A. Yes, in every case of insensibility, since the patient is unable to complain if the heat is too great.

Q. Why do you rub the limbs upwards?

A. To drive the blood along the veins towards the heart.

Q. When all this has been done, what is the next thing to do?

A. Put the patient to bed and let him sleep.

Q. What is the best thing for the patient to drink after restoration?

A. A little warm water, and afterwards a little stimulant and warm water, hot coffee or tea.

Q. If the breathing is distressed, what would you do?

A. Apply hot mustard poultices to the chest, back and front.

HANGING.

Q. If you found a man hanging, what would you do?

A. Hold and lift him with one arm, cut the rope with the other, lower him quietly to the floor, take the rope from around his neck, loosen all clothing

about the neck and chest, secure the tongue, and resort to artificial respiration.

CHOKING.

Q. If a man had swallowed a large piece of meat, or other large substance, and it became fast in the throat, what would you do?

A. Gag his jaws open, introduce two fingers down his throat, and try to remove it; thump him between his shoulders, placing him with the chest against some hard substance; this makes the thumping more efficient. In the case of a child, place one hand on the child's breast whilst thumping the back; get a tallow-dip candle, and with it try to force the offending substance downwards, or make your patient sick.

Q. In cases where the obstruction is not complete, what may be tried?

A. Gulping down quickly mouthfuls of water. Failing in this, an emetic of mustard and water may be tried in the hope that the vomiting may dislodge the obstructing mass.

Q. If a child has swallowed a small coin, a bean, or other small hard body, what might you do with success?

A. Hold the little patient up by the heels, inverting him.

SUFFOCATION BY GASES.

Q. How is suffocation generally produced?

A. (1) By the escape of gas. (2) By smoke from a burning house. (3) By smoke from the fumes of a

charcoal or coke fire in a closed room. (4) By the accumulation of carbonic acid gas in sewers or wells. (5) By coke-damp after an explosion in a mine.

Q. How would you treat a case of suffocation?

A. Remove the patient at once into the fresh air; undo all clothing about the neck and chest; dash cold water on the face and chest. If this treatment fails, resort to artificial respiration as in drowning.

Q. What precautions should a man take, entering a room filled with gas for the purposes of rescue?

A. (1) He must not carry a light into the room. (2) He should cover his mouth with a wet cloth, all the better if wetted with a mixture of vinegar and water. (3) He should break the windows, taking in a fresh supply of air at each window before proceeding to the next; by this means currents of air will be established, and the room cleared of the gas, and made bearable. If the windows are not too high from the ground, they may be broken from the outside.

BURNS AND SCALDS.

Q. What would be your "first aid" treatment in a case of "severe burn" or "scald"?

A. (1) Remove carefully all the clothing by cutting it away, and if it adheres to the flesh, soak the part well in oil before removing it. (2) Apply any kind of oil, such as sweet, salad, or linseed oil, lard, or a mixture of equal parts of oil and lime-water (carron-

oil), on old rag or lint, and cover this with cottonwool or flannel to exclude the air; and then bandage. The blisters should not be cut or broken, neither should the burnt part be held to the fire. Covering the part well with flour, and then wrapping it in cottonwool, is another method of treating burns and scalds, but it is not so good as the former.

Q. Is it right, in treating extensive burnt surfaces, to cover the affected part with one large sheet of lint.

A. NO. Strips about the breadth of one's hand should be used, so that at later dressings one strip can be removed at a time, and a fresh dressing applied before the next strip is taken off. This diminishes shock.

Q. What should be done after the oily dressings have been applied?

A. The part should then be enveloped in cotton-wool, or, if that cannot be obtained, a piece of flannel.

Q. How would you treat a burned face?

A. Cut a mask for the face out of a piece of lint or linen, leaving holes for the eyes, nose, and mouth; having oiled and applied it, cover with cotton-wool or flannel, taking care to leave holes in that covering also for the eyes, nose, and mouth.

Q. How would you treat the shock of a burn?

A. By warmth to the surface of the body and giving warm drinks.

Q. Are burns to the neck and abdomen specially dangerous?

A. Yes; they must always be regarded with apprehension.

Q. In the case of a burn or scald, whilst getting the oil or other dressings, what should be done to ease the pain?

A. In the case of a burned or scalded leg or arm, place the injured limb in warm water; the water should be as warm as can be comfortably borne by the back of one's own hand or elbow.

Q. Are alkaline solutions soothing to burns?

A. Yes; they may be prepared by adding a dessertspoonful of baking soda (bicarbonate of soda) to a basin full of warm water.

Q. How may washing materials for clothing be rendered fireproof as far as blazing up is concerned?

A. By dissolving alum in the blue-water out of which the clothes are wrung before they are starched.

FOREIGN BODIES IN THE EYE AND EAR.

Q. How would you remove a foreign body from the *eye*—such as a fly or dust?

A. Seat the patient in a chair and then place a

bodkin, or very small pencil, on the upper eyelid; take hold of the eye-lashes, and gently turn the eyelid over the bodkin or pencil. If the foreign body is to be seen, remove it by brushing the eyelid with a camel's hair brush, or by gently wiping with a pocket-handkerchief. If the foreign body is *under* the lower lid, draw the eyelid down and wipe away as directed above.

Q. What should be done when a piece of steel becomes embedded in the eye-ball?

A. Pull the lower eyelid down and drop a little olive or castor oil on to the eye-ball between the lids. Secure special help as soon as possible.

Q. How would you proceed to remove any foreign body from the *ear?*

A. It is not well to attempt too much in cases of this kind. Should it be an insect in the ear, pour in a little warm oil; or if this is not at hand, a little warm water gently poured in will answer the same purpose. If the substance is only a small one, the patient may be laid down on the affected side, and the opposite side of the head tapped, and sometimes the foreign body will fall out. Should this treatment fail, send for a medical man.

BRUISES, WOUNDS, AND CUTS.

Q. What is meant by a **Bruise**?

A. More or less extensive hæmorrhage below the skin, without the skin being wounded. A black eye is a good example of what is meant.

Q. What are the changes through which a bruise passes after the receipt of the injury?

A. The skin is first reddened, then becomes dusky in hue, and then purple, and afterwards almost black. In a few days it becomes of a lighter tint, and then passes through purple, violet, greenish, and yellow shades before the normal colour of the skin is reached.

Q. What is the treatment of a bruise?

A. The application of ice or cold-water dressings.

Q. What is necessary in dealing with wounds?

A. Be sure that your hands are clean.

Q. In the case of having to deal with a cut out of doors, and none of the usual dressings about you, what must be done?

A. If you can get some quite clean water and the wound is dirty, and you have a clean handkerchief with you, wash the wound and apply the wet handkerchief over the wound. If the wound is not dirty do not wash it. If you have only a soiled handkerchief with you you must apply a piece of clean

(unprinted) paper over the wound, and then bind it up with the handkerchief. See that no dirt or foreign body is left in the wound.

Q. If the accident has occurred indoors, what may you do?

A. In cleansing the wound use water which has been boiled and allowed to cool, with one or other of the ordinary disinfectants added to it, such as, permanganate of potash, a few crystals to half a tumblerful of water; boracic acid, a teaspoonful to the same amount of water; or carbolic acid, 1 part in 80 or 100; or thymol in solution. Cleanse the wound carefully and dry with perfectly clean linen, or calico rags or towels. To secure perfect cleanliness the skin may be mopped round with whisky. If necessary bring the edges of the wound accurately together by means of clean strips of adhesive plaster. Then some one or other of the following may be applied over the wound and secured by a bandage: dry lint, linen, or calico, cotton-wool, or medicated gauze. The wound may be dusted over with some boracic powder. Wet dressings may be necessary at times.

Q. What should be done if the blood has crusted over the wound?

A. Unless the wound is known to be dirty it should not be disturbed.

Q. What must be done when the wound has been dressed?

A. It must be kept quiet.

Q. What is meant by the term **Punctured Wounds?**

A. Such wounds as are caused by the stab of a knife, dagger, or bayonet. The wound is usually small, rounded, or jagged, and the edges driven inwards by the weapon.

Q. Ought punctured wounds to be probed by ambulance pupils?

A. Certainly not; they ought to be left alone for the medical men to deal with.

Q. What is meant by **Lacerated Wounds?**

A. Such wounds as are caused by the tearing of machinery, the bite of or clawing of an animal, or by an artillery shell, etc.; the parts are torn unequally, so that the surface of the wound presents a very uneven, ragged appearance.

Q. Do such wounds generally bleed much?

A. No; the ends of the arteries are usually dragged out and closed by the nature of the injury. If bleeding is feared a tourniquet may be loosely applied ready for twisting if required.

Q. What is meant by **Contused Wounds?**

A. Such wounds as are produced by blows of some blunt instrument, *i.e.*, sticks, truncheons, etc.

Q. What are the appearances of a contused wound?

A. In addition to the breach in the skin the parts around are severely bruised, with the edges uneven and driven inwards.

Q. Is there, as a rule, much hæmorrhage?

A. No; it is usually insignificant, the blood merely trickling from the wound.

Q. How must such a wound be treated?

A. Both as a wound and a bruise.

Q. What are the two principal kinds of **Gunshot Wounds?**

A. (*a*) When a person is peppered with small shot; (*b*) bullet wounds.

Q. Is an attempt to be made to remove the small shot at once?

A. No; wrap the parts wounded in a sheet or towel wrung out of hot water, or cold if it is more soothing.

Q. What is to be done in the case of the bullet wound?

A. Cover over the openings of entrance and exit, if both exist, with lint, gauze, or cotton-wool dressings.

Q. If a joint is wounded by a bullet, or some stabbing instrument, what is to be done?

A. Wrap the part up in cotton-wool and put the limb in a splint.

Q. What is to be done when a needle breaks off after penetrating the skin and disappears?

A. Take the patient to a doctor at once.

Q. If it enters near a joint, what must be done?

A. Keep the joint at rest on a splint.

Q. How would you remove a fish-hook which had penetrated beyond the barb of the hook?

A. Cut off the dressing from the shank of the hook until only the metal is left, and then force the point of the hook through the skin and withdraw at the shank end.

Q. What should be done if a person were stabbed in the abdomen, and the intestines protruded through the wound?

A. Flannels wrung out of warm water (98° F.) should be placed lightly over the protruding mass to keep the bowels warm until the arrival of the surgeon.

POISONS.

Q. What is a poison?

A. A substance capable of destroying life.

Q. Into how many classes are the poisons divided? Name them.

A. Two classes; irritants and narcotics.

Q. Mention two kinds of irritants, and give examples.

A. Acids: Oil of vitriol, aquafortis, spirits of salts. Alkalies: Caustic potash, soda, and ammonia.

Q. In the case of poisoning by corrosive acids, or alkalies, what are the two great points to bear in mind in treating them?

A. First, think how to "kill the poison." Secondly, how to "soothe the burned tissues of the throat."

Q. How do you "kill an Acid"?

A. By giving an ALKALI.

Q. Name the Alkalies you would use to kill the Acid poison.

A. Lime, Potash, Magnesia, and Soda.

Q. How do you "kill an Alkali"?

A. By giving an ACID.

Q. Name the acids you would use to kill the strong Caustic Alkali.

A. Vinegar and water, lemon-juice, orange-juice or tartaric acid.

Q. If you saw a patient who had just swallowed a strong acid, what would you do?

A. (1) If at hand, give him two teaspoonfuls of magnesia, whiting, chalk, or carbonate of soda mixed in a tumbler full of water or milk. Lime from the walls would answer the same purpose. (2) Afterwards give the patient oil, milk, white of egg, flour and water, or barley-water to drink to relieve the pain.

Q. Are there any differences in the appearance of the tissues which have been burned by different acids?

A. Yes.

Q. What are they?

A. By Sulphuric Acid they are turned black. The same change results from Hydrochloric Acid. Nitric Acid turns them yellow. Oxalic and Carbolic Acids cause them to turn white.

Q. What is the best antidote to give in a case of poisoning by Carbolic Acid?

A. Epsom Salts.

Q. How must they be given?

A. A tablespoonful of the salts must be dissolved in a little water and given at once; this must be followed by a mixture of white of egg in milk and water; some advise an emetic after the salts, but this seems a risky measure in the case of poisoning with acids.

Q. How must the subsequent depression be dealt with?

A. By the application of warmth, and the administration of stimulants.

Q. What are the best antidotes to use in a case of poisoning by Oxalic Acid?

A. Magnesia and Lime.

Q. Why?

A. Because their compounds are insoluble.

Q. Is this the case with the other alkalies: Potash, Soda and Ammonia?

A. No. Their compounds are soluble, and are dangerous.

Q. What would you do in a case of poisoning by an alkali?

A. Give an acid, such as vinegar and water, or lemon-juice and water. Afterwards give *oil*, as in poisoning by an acid.

Q. Suppose you could not ascertain whether the poison was an acid or an alkali, what would you do?

A. Give oil to drink, or flour and water, milk, barley-water, strong tea, eggs, etc.

Q. Would you give an emetic?

A. No; for an emetic would do harm, by removing the tissues about the throat and stomach already injured by the poison.

Q. If, by any chance, the surface of some portion of the body be exposed to the action of a strong alkali (strong ammonia, caustic potash, or caustic soda), what should the treatment be?

A. Wash freely with water mixed with vinegar, or a solution of tartaric acid in water, and treat as a burn, applying oil and cotton wadding.

Q. If, by any means, a strong acid has been poured over the surface of the body, what treatment should be adopted?

A. Wash freely with water, and, as soon as possible, make a solution of soda, lime, potash, or magnesia, and wash freely the burned parts. A piece of mortar or some plaster are the readiest materials at hand to make a solution of lime. Treat afterwards as a burn.

Q. If a person fell into a lime-kiln or soap-lye, what should be done?

A. Get the sufferer out as quickly as possible. Throw water plentifully over him (or her), or immerse the body in a tub or bath full of water; wash with vinegar and water or diluted sulphuric acid; and then apply oil, and treat the case as one of ordinary burns.

Q. What are the symptoms of a case of poisoning by opium or morphia?

A. If seen very soon after taking the poison, the face would be flushed, breathing heavy and slow, progressive insensibility, *pupils of eye contracted to a pin's point.*

Q. What would you do in such a case?

A. Keep the patient from going to sleep. If he or she can swallow, give an emetic. A tablespoonful of mustard in a tumbler of warm water, or the same quantity of salt. Tickle the back of the throat with a feather, or with the finger. Walk the patient about between two persons, flick the bare calves with a wet towel, dash cold water on the head and face, give strong coffee to drink, and, last of all, shock from galvanic battery and artificial respiration.

Q. What would you do for a person who was intoxicated?

A. (1) If the patient has been drinking within a few hours, give an emetic, such as salt or mustard and water. (2) Put him to bed: apply hot bottles, wrapped in flannel, to the feet and armpits. Cover

with blankets to keep up the heat of the body. Give coffee, soup, and other nourishment.

Q. In the case of poisoning by Corrosive Sublimate, what is the best antidote to use?

A. Unboiled white of egg.

Q. How many grains of the Corrosive Sublimate does the white of one egg neutralize?

A. Four.

Q. What is the best method of giving the white of egg in a case of Corrosive Sublimate poisoning?

A. Mix the whites of six or eight eggs with a pint of water, and beat them up well together, and give a wineglassful every two or three minutes so as to favour vomiting.

Q. If vomiting does not take place, what measure should then be adopted?

A. Give an emetic.

Q. If eggs cannot be procured, what are the best substitutes?

A. Milk, flour and water, barley water; they should be given freely.

Q. In a case of acute arsenical poisoning, *i.e.*, where a large quantity of the drug has been taken by mistake, what should be done whilst waiting for the medical man?

A. If vomiting is not present, give an emetic at once. If it is, then encourage it by large draughts of warm water. After the stomach has been cleared out by the vomiting, magnesia, or equal parts of olive-oil and lime water, should be given freely.

Q. In the case of children who may have swallowed laburnum, or other poisonous berries, what steps should be taken whilst waiting for medical assistance?

A. An emetic should be given at once; if collapse is present, apply warmth to the feet, mustard poultices over the heart and abdomen, and administer stimulants in small quantities, well diluted.

Q. What should be done whilst waiting for the arrival of the medical man in cases of poisoning by non-corrosive substances, such as Baryta, Spanish Fly, Croton Oil, Phosphorus, and Strychnine?

A. Give an emetic at once, and encourage the vomiting by the administration of warm water; this, as a rule, will be sufficient until the arrival of skilled assistance.

Q. If a quantity of Iodine has been taken accidentally, what treatment should be adopted?

A. Starch should be freely administered; it may be given in the shape of starch and water, arrowroot, or gruel. If starch or gruel is not at hand, eggs may be given. Vomiting must subsequently be induced by means of an emetic, and stimulants may be required.

Q. In cases of poisoning by Baryta, what must be given after the administration of the emetic?

A. Epsom or Glauber Salts, as in the case of poisoning by Carbolic Acid.

Q. What is the antidote in a case of poisoning by Nitrate of Silver (Lunar Caustic to wit)?

A. The free administration of salt and water. If sickness is not induced, a stronger emetic must be given.

Q. Having administered an emetic in a case of Strychnine poisoning, what may be tried in cases where there is a tendency to arrest of the breathing?

A. Artificial respiration may be kept up for some time.

Q. What should be given after the stomach has been well emptied in a case of poisoning by Tartar Emetic?

A. Plenty of strong black tea drawn for from twenty minutes to half an hour, the object being to get the full effect of the tannin. Stimulants and warmth will be required.

Q. What should be given in cases of poisoning by Zinc, which is contained in "Burnett's Disinfecting Fluid," etc.?

A. A quantity of warm water with soda dissolved in it; Carbonate of Soda is the best, but washing soda may be used if it is very well diluted.

Q. In cases where poisonous mushrooms have been eaten, what should be done?

A. Give an emetic at once, and follow it up by warmth, stimulants, and poultices to the abdomen. An ounce of castor oil should be given as soon as possible to carry off whatever may be in the bowels.

Q. Is it right to reheat a dish in which mushrooms form a part?

A. Certainly not.

Q. Ought mushrooms which show the slightest sign of decay to be eaten?

A. No.

NOTE.—Avoid all fungi which grow in deep dark woods, or present an unwholesome or sickly-looking colour, or those which leave a bitter taste in the mouth.

Q. If by chance a leech has been swallowed, what is the best thing to do?

A. Give plenty of salt and water, and it will be very quickly dislodged and thrown up.

Q. In cases of vomiting, especially where there is any suspicion of poisoning, what should be done with the vomited matters?

A. They should be carefully preserved for inspection, and, if necessary, examination.

Q. In dealing with cases of poisoning there are fou broad facts worthy of remembrance. What are they?

A. (1) *When a person has swallowed a poison and tends to go to sleep keep him awake.*

(2) *When he seems to be going into a fit dash cold water on his head, face, and neck.*

(3) *When there are no stains or signs of burning about his mouth* give an emetic, *also eggs, milk, oils (except in phosphorus poisoning), and end up with strong tea.*

(4) *When there are stains or signs of burning with acids about the mouth give eggs, milk, oils, but* no emetic.

Q. In the case of vomiting in cases of supposed

poisoning what ought to be done with the vomited matters?

A. They ought to be carefully preserved for examination.

INSENSIBILITY AND FITS.

Q. What should you do upon finding a person in a state of insensibility?

A. (1) Send for MEDICAL assistance.

(2) Loosen all tight clothing from about the neck and body.

(3) Note the position of the body, the state of the clothing, whether torn or disarranged, also the immediate surroundings.

(4) Place the body flat upon the ground on its back, stretching the arms by the sides, straightening the legs.

(5) Examine, by passing the hand lightly over the head, for (*a*) Lumps; (*b*) Depressions; (*c*) Wounds; (*d*) Contusions or bruises.

(6) Note whether the face is flushed or pale.

(7) Examine the eyes, noting if

(*a*) Insensible to touch.

(*b*) The pupils are evenly contracted or dilated.

(*c*) One pupil is larger than another (unequal dilatation).

(*d*) The pupils respond freely to stimulus of light.

(8) Note the character of the breathing.

(*a*) Painful and catchy.

(*b*) Rapid and shallow.

(*c*) Slow and laboured.

(*d*) Snoring and puffing, the cheeks being distended with each expiration.

(9) See if there is a discharge of blood and water from the ears, or bleeding from the eyes, nose, and mouth.

(10) Examine the ribs carefully and tenderly, to see if any are broken. In connection with the ribs, note if there is any hæmorrhage from the lungs.

(11) Examine the body generally for cuts or bruises.

(12) Examine the limbs to see if any of the bones are fractured. In doing so, compare the limb under examination with its fellow.

(13) Arrest hæmorrhage if present.

(14) Provide for a sufficiency of air—

(*a*) If in the street, by keeping the crowd away.

(*b*) If indoors, by opening the windows and doors.

(15) If the face is pale, lower the head; if it is flushed, raise it on a pillow.

(16) Give nothing by the mouth; or do not attempt to give anything by the mouth before the patient is able to swallow. Be very careful that what you do give when the patient can swallow is suitable for the case in hand.

(17) Examine the breath for the odour of stimulants or drugs.

Q. How must the head be held in cases of insensibility?

A. It must be placed in a line with the body. If the head is lifted up, say upon a man's knee, and the patient's chin be doubled forward on his breast, there is danger of suffocation. In cases of apoplexy and epilepsy, it must not be allowed to hang back too far. The patient should be in a position to breathe easily.

Q. What general rule would you follow, in fixing the position of the head in cases of insensibility?

A. If the face be flushed, the head should be raised without throwing the chin too far forward on the breast. If the face be pale, the head should be on a line, or, if possible, on a lower level than the rest of the body.

Q. If the patient's face is very pale, surface of the skin clammy, breathing feeble, pulse weak, pupils of the eyes even, and perhaps slightly dilated, and the heart's action very feeble, what would you think was the matter?

A. A fainting fit.

Q. What would you do?

A. Loosen all tight clothing; then either bend the patient's head forward between the knees, or remove at once to open air, or where there is plenty of fresh

air; place the patient flat upon the back, with the head hanging low; dash cold water in the face; apply smelling-salts or snuff to the nose; give stimulants, and, if necessary, resort to artificial respiration.

Q. If a patient becomes suddenly or gradually insensible, the face becomes flushed, the breathing puffing and snoring, the pupils of the eyes unequally dilated, and there is loss of power in one or other of the limbs, together with twitching movements of the muscles, what would you think was the matter?

A. Apoplexy, or pressure on one side of the brain

Q. What would you do?

A. Place the patient lying down; loosen all tight clothing from the neck and body; raise the head; apply cold to the head and warmth to the feet, and secure medical aid as quickly as possible.

Q. Would you give an emetic to a patient in a fit of apoplexy, or with any head injury?

A. Most certainly not.

Q. Would you give stimulants, such as brandy and water, whisky and water, wine, etc., to a person in a fit of apoplexy?

A. Certainly not.

Q. Would you try to give a person who is insensible anything at all by the mouth until you were quite sure the power of swallowing was restored?

A. No, decidedly not.

Q. Why?

A. You might suffocate him, since, the power of swallowing being lost, the liquid given cannot get beyond the back of the throat and top of the wind-pipe.

Q. If a person was suddenly seized with the following symptoms, what would you think was the matter: Screaming; foaming at the mouth; biting the tongue; convulsive movements of the muscles of the face, neck and limbs; deeply congested appearance of the face, and swelling of the veins of the neck: insensibility to touch of the eye; possibly a bloodshot appearance of the white of the eye; partial or complete insensibility passing into a state of deep sleep; after a time an awakening with a dull, heavy, confused look, and unconsciousness of what has passed?

A. An epileptic fit.

Q. What would you do?

A. Loosen all tight things from around the neck and body. Place the sufferer lying down, with the head raised; put a gag between his jaws to prevent further injury to the tongue. Guard against the convulsive movements inflicting any injuries upon the patient, and allow him to sleep off the effects of the fit. Don't tell him of what has passed, and secure medical aid.

Q. What increases the certainty as to the fit having been due to true epilepsy?

A. The sufferer's history, and also his having been taken irrespective of the disagreeabilities or dangers of the place in which he happened to be, *i.e.*, close to a fire, and falling into it, or to a puddle of mud and water, into which he may fall.

Q. What makes it doubtful?

A. The character of the person seized; the place where he has been apparently seized—*i.e.*, in places where he is sure of a crowd of sympathising onlookers; the sensitiveness of the eyes to touch, and possibly the watching on the part of the impostor, through half-closed eyelids, of the effect of his proceedings upon those around. If there is frothing at the mouth, and a little of the froth on being rubbed between the fingers gives a decided sense of soap lather, the diagnosis is pretty certain. The impostor also finds it difficult to bear pain induced by making pressure under the nail upon the "quick"; the genuine, on the contrary, feels nothing of it.

Q. If a person was seized with jerky movements of head and body, and fell suddenly but carefully, and on examination the eyes were found sensitive to touch, and the person was not really insensible, or if the person commenced singing and laughing excitedly, tossing his arms wildly about, and was apparently

in a state of convulsions, with still the absence of insensibility around him, what must be suspected?

A. **Hysteria, or hysterical epilepsy.**

Q. What would you do for such a case?

A. Loosen all tight clothing; douche well with cold water, and whilst really looking well after the person's interest, show but little sympathy or commiseration for him. Indifference in manner soon brings such sufferers to their senses.

Q. If a person was found partially insensible, capable of being roused, smelling strongly of drink, pupils of equal size, and usually dilated, the cornea being sensitive to the touch, a temperature 1° to 2° below normal, and a soft and frequent pulse; if, further, there were no convulsive movements, no inequality of pupils, no blood and water running from the ears, no bruise, or wound to account for the insensibility, what might fairly be expected?

A. **Drunkenness.**

Q. Is drunkenness, carried to excess, a harmless thing?

A. No; it is a source of danger in itself, and ought to be regarded in a serious light.

Q. What would you do?

A. (*a*) Loosen clothing, provide for free circulation of air, and place in a position in which breathing is easy.

(*b*) Keep the patient warm by taking him indoors, covering him over, and applying hot bottles or friction to the surface of the body, especially to the limbs.

(*c*) If rousable give hot tea or coffee.

(*d*) If the pulse is fairly strong give an emetic of mustard and luke-warm water.

(*e*) When the emetic has acted give support, such as tea, soup, beef tea, or meat essences.

Q. Ought a drunken man to be "run in" and locked up in a cold cell?

A. Certainly not.

Q. Is it a fair inference to suspect every man who smells of liquor, and is insensible, of being drunk?

A. No.

Q. Mention a good way of arousing a very drunken man.

A. Rub his ears well. In doing so, remember to stand behind him, or to place his head on your knee; you thus avoid the risk of his hitting out before him on being aroused, and thus getting hurt.

Q. What are the most prominent means of distinguishing between apoplexy and drunkenness?

A. (*a*) In apoplexy the patient is usually getting on in years; collapse from drink may occur in a person of any age.

(*b*) The absence of the smell of drink would indicate apoplexy.

(*c*) The pupils of the eyes are generally unequal and fixed in apoplexy; they are equal and respond to the stimulation of light in collapse from drink.

(*d*) The pulse at the wrist in apoplexy is usually full and strong; in collapse from drink it is feeble or altogether absent.

(*e*) The features in apoplexy are usually congested and suffused; in collapse from drink they are pale and pinched.

(*f*) If a clinical thermometer is at hand the temperature of the body will be found considerably above the normal temperature (98·4) in apoplexy, and considerably below it in cases of drunkenness.

Q. If a person presented a pale, pinched face, dull-looking eyes, a scarcely perceptible pulse, feeble respiration, what do you think might have been likely to cause such a train of symptoms?

A. **The collapse of shock.**

Q. Name some of the various causes of shock.

A. Blows, grief, lightning, operations, or the dread of them, fright; in short, anything likely to make a sudden and profound depressing effect on the nervous system.

Q. If a person was found lying motionless and insensible upon the ground, pupils probably both equally and largely dilated, with the surface of the body pale and cold, the pulse feeble, and the respira-

tion sighing and slow, and if, with all this, the mark of a bruise was found upon the person's head, what would you say was the matter?

A. Concussion of the brain.

Q. What is the usual course of events in a slight case of concussion of the brain?

A. If roused, the injured person answers hastily and then relapses; after a time the sufferer becomes restless, and vomits, and then recovers. For some little time after recovery he remains bewildered, and may wander in conversation, and probably has no distinct recollection of what happened.—In severer cases, the after-effects are more pronounced, and fall entirely within the province of the medical man.

Q. What would you do for a case of concussion of the brain?

A. Place the patient lying down on his back with his head slightly raised; keep him in a quiet, darkened room; apply cold to the head, and warmth to the extremities and surface of the body. Secure medical aid.

Q. If you have a person with the symptoms of apoplexy, but bleeding from the eyes or ears, what do you suspect?

A. Fracture of the base of the skull.

Q. What treatment would you adopt for cases of

fractures of the base of the skull, or where you have the bones of the skull crushed in and pressing upon the brain at one point or another?

A. The same treatment as that for apoplexy.

Q. If you find a person insensible in the road; he smells strongly of drink; both eyes are contracted to a pin's-point; what would you suspect?

A. He may, or may not, have been drinking deeply, but **Opium** poisoning must be suspected.

Q. If you saw a man leave a public-house; you know he is much given to drink; he reels and falls; you come up to him and find him insensible; he smells strongly of drink; you examine the eyes and find one larger than the other (unequally dilated)—what should you suspect?

A. **Apoplexy.**

Q. What are the symptoms of **Shock?**

A. In the first place there is the history of a fright or injury having been sustained; say a man has been violently shaken and has had a limb broken in a railway collision; he is cold and shivering, and tells you he feels cold; he is sensible, so that there is no direct brain injury; if the temperature of his body is taken by means of the thermometer, it is found several degrees below the normal temperature, 98·4.

Q. Is "shock" dangerous to life?

A. Yes; patient tends to die through sinking of the temperature and nerve depression.

Q. How would you treat a case of "shock"?

A. Use every means to increase the temperature of the body and to excite nervous energy. Stimulants should be given, nourishment administered, and the body well covered with warm wraps. When possible, hot bottles, bricks, etc., should be applied, and mustard plasters may be placed over the heart, and to the thighs and feet.

Q. What are the signs and symptoms of sunstroke, heatstroke, and heat apoplexy?

A. Patient has been exposed to the influence of great and probably long-continued heat, say in the stoke-hole of a steamer, in the tropics, or on a march in the broiling sun. The patient may become suddenly sick, with a feeling of faintness, giddiness, and difficulty in breathing. He usually complains of thirst, the skin becomes dry and burning, the face congested, and the pulse quick and bounding. Finally, insensibility may result with stertorous breathing, followed by collapse.

Q. What treatment should be adopted in a case of sunstroke?

A. (1) Place the patient at once in a cool and shady place. (2) Dash plenty of cold water over the head and face (3) Lay the body flat with the head

well raised. (4) Remove all tight clothing from the neck and chest. (5) An ice-bag or cold applications to the head and spine should be continued for some hours. (6) When the patient can swallow cold water may be given to drink.

N.B.—Stimulants must be avoided.

Q. Ought stimulants to be given in cases of sun-stroke?

A. No, certainly not.

Q. What are the two most essential points to remember in dealing with all forms of insensibility or fits?

A. (1) Send for medical assistance; (2) loosen all clothing about the neck and body.

Q. When vomiting is necessary, how would you induce it?

A. By tickling the throat with a feather or a finger, or by giving emetics.

Q. What are the simplest domestic emetics to use?

A. Mustard and water, or salt and water. A tablespoonful of mustard to a tumblerful of warm water for the first, and the same proportions of salt and water for the last. After the emetic is given, lukewarm water should be given pretty freely until vomiting is induced.

ELECTRIC SHOCK.

Q. What treatment must be adopted in cases of insensibility from severe electric shock?

A. (*a*) General treatment for insensibility, such as loosening the clothing, placing the patient in a reclining position, and securing a free access of air.

(*b*) Flip the face and chest with a towel dipped in cold water.

(*c*) Commence artificial respiration if the other methods fail to restore animation.

N.B.—The patient must not be touched if still in contact with the electric wire, unless the hands of the person assisting are protected by some insulating material, such as india-rubber gloves, or a piece of mackintosh sheeting or coat, or india-rubber pouches in a case of emergency.

FIRE.

Q. If a person's clothes take fire, what ought to be done?

A. Throw the person flat upon the ground, and wrap him up tightly in a rug, carpet, coat, or anything handy.

Q. Why do you throw the person down?

A. Flame always ascends; by throwing him down the extension of the flame is limited.

Q. What precaution ought women to observe in approaching a person on fire?

A. To advance to the person's head, as being the least dangerous point, and so avoid the chance of themselves catching fire.

DOG AND SNAKE BITES.

Q. If bitten by a mad dog, what should be done?

A. Apply, *at once*, a tight ligature upon the heart side of the wound. Wash the wound thoroughly, and then, taking care that there is no wound or crack in the lips, suck the wound well. It should then be well cauterized, either with (*a*) a piece of iron red-hot; (*b*) strong nitric acid; (*c*) lunar caustic.*

Q. If bitten by a snake, what should be done?

A. The measures to be observed are the same as those for a dog bite; and stimulants in the shape of ammonia and brandy to be freely administered. It is said that the measure of safety is the power of becoming intoxicated; immense quantities of brandy can be taken without any intoxicating effect being produced, when the depressing power of the snake poison is great.

* If the animal is known to be mad, it is recommended by some to cut out the flesh around the wound; or even amputate, but this does not fall within the limits of first aid.

FROST BITES.

Q. May this accident take place when the cold is not very severe?

A. Yes.

Q. Under what circumstances especially may frost bites occur?

A. When, from any cause, there is great exhaustion; *i.e.*, if the person exposed to the cold has been exhausted by long marching, by hunger, or be stupefied by drink, and under these conditions sits down to rest when a cold wind is blowing.

Q. Which are most easily restored, those whose bodies have been covered with snow, or those who have not been so, but have been exposed to the influence of what is termed a "black frost"?

A. Those who have been covered with snow. Snow is a bad conductor of heat, and by it vital force is conserved.

Q. What are the appearances of those who are frozen?

A. (1) Surface of the body white and cold, with a blueish tint on the nose, lips, hands, and feet. (2) Limbs become stiff. (3) Extreme points of the body—arms, legs, fingers, toes, nose, and ears—are often quite hard and cold as ice.

Q. Is care necessary in the restoration of frost-bitten patients?

A. Yes, the greatest.

Q. Would it be right to bring such a patient at once into a well-warmed room?

A. *No*, certainly not. The result would be certain, or almost certain, death.

Q. What should be done?

A. The patient should be carried most carefully into a closed but cold room. The undressing should be done most cautiously, lest the frozen and stiffened portions of the body might become broken.

Q. What may be done to avert this?

A. The body may be raised and bandaged.

Q. What further steps must be taken?

A. If snow is to be had, the body should be covered with it, and the whole surface of the body be carefully and vigorously rubbed with it.

Q. If there is no snow obtainable, what must then be done?

A. Put the patient into cold water; or, having covered the body, rub with cold wet cloths or cold sand. If breathing has ceased, artificial respiration must be tried with great care and caution.

Q. What steps are to be taken when the patient begins to breathe naturally, and the limbs become less stiff?

A. (1) Carry into a moderately warmed room. (2) Cover lightly with cold coverings and sheets. (3) Rub by degrees with warm cloths. (4) Gradually increase the warmth of the room.

Q. How should we try to restore consciousness?

A. By the use of ether, smelling salts, ammonia, and slightly stimulating drinks, such as cold coffee or soup, light cold wine, etc.

Q. If the part frozen remains swollen, without sensation, blue, or blistered, what is to be feared?

A. Mortification.

Q. When lifting, what points should be observed?

A. Whatever exercise is selected, see that the bearers get into proper position, that their hands are passed well under the patient, and that the lifting movements are made steadily and simultaneously. The patient's body ought to be kept strictly in the horizontal position, and the movements ought to be so carried out that no pain would be inflicted even in the case of an injured spine.

CARRIAGE OF THE INJURED.

Q. What should be done before lifting anyone who has sustained a fracture?

A. Examine the splints and bandages carefully to see if they are well and firmly applied.

Q. Ought the stretcher *ever* to be carried on the shoulders of the bearers?

A. Certainly not.

Q. Why not?

A. For three reasons. (1) Patient might roll off. (2) Patient might die during transit without the bearers' knowledge. (3) The patient would be too high for No. 3 to exercise proper supervision over the injured limb.

Q. Is it right to cross ditches, fences, or walls, if they can possibly be avoided?

A. No; gaps, gateways, and doors must be looked for and used.

Q. When marching uphill, how ought the patient's head to be?

A. In front.

Q. Is there any exception to this rule?

A. Yes; when there is a fracture of the leg or thigh. The position is reversed, the head being to the rear, so as to avoid the possibility of the body weight pressing down upon the injured limb.

Q. In going down a hill how should the head be placed?

A. Behind, except in cases where there is a fracture of the lower extremities.

Q. In selecting bearers what should be borne in mind?

A. To pick bearers of an equal height.

Q. If the stretcher is to be carried by carriage or train, what should be done if possible?

A. Sling the stretcher, taking care the fastenings are sufficiently tight without being too rigid.

Q. When the bearers are marching, what points should they bear in mind?

A. (1) To break the step. (2) To slightly bend the knee. (3) To step short, a pace of 20 inches.

FINAL QUESTIONS, ANSWERS AND REMARKS.

Q. What ought an ambulance pupil to constantly bear in mind?

A. That he is not qualified by having attended courses of ambulance lectures to take the part of the surgeon or medical man.

Q. What is his position, then?

A. Merely to afford FIRST AID, until medical or surgical assistance has been obtained.

Q. Has mischief ever been done by ambulance pupils forgetting their true position and functions?

A. Certainly. In Chesterfield district some over-clever pupils applied a tourniquet to arrest hæmorrhage from a wound in the fore-arm; they did it so cleverly and successfully they thought they could spare a visit

to the doctor; the tourniquet was allowed to remain *in situ* three days, with the result that circulation was arrested, the arteries became plugged, and the man nearly lost his arm through mortification. Attempts to treat fractures, poisonings, states of insensibility, and fits without medical or surgical advice must lead to mischief. Doubtless the list of mischievous incidents might be enlarged.

REMARKS.

Ambulance knowledge rightly used, as a means of affording first aid, and first aid only, must prove of immense value in affording relief and warding off danger to many poor sufferers. The nstances of such utility are far too many to dwell upon at length. Accidents are of constant occurrence, and no one knows when it may be their turn next, either to receive or give the benefits of such instruction. The work of the St. John's Ambulance Association has, with a great amount of truth, been compared to that of the National Life-Boat Association; the objects of both are the same, to save life and alleviate suffering. It is a land life-saving service, just as the other specially devotes itself to meet the terrors of the deep, when storms rage and life is endangered. Than this there can be no nobler or less

selfish work. Whilst the instruction given is useful for all classes, it is especially useful to those whose duties constantly throw them in the way of dealing with injuries and accidents, such as policemen, soldiers, miners, railway servants, cabmen, sailors, and workers in the midst of machinery of all sorts. Amongst these classes we trust the movement may steadily extend. The knowledge gained will tend to increase their sense of human tenderness towards those who are in suffering; and, being able to give relief, and to do something for the injured, they themselves will be spared the painful sense of helplessness, and disgust with the results of misdirected efforts to give relief, when they are anxious to be of service, but ignorant how to render it.

Amongst the instructed we shall no longer hear of a policeman having to stand by and see a woman bleed to death from a varicose vein just because he did not know what to do; no longer hear of apoplectic patients being locked up for drunkenness, and dying in a police cell, when they ought to be safe at home under medical care; no longer hear of iron-workers putting a comrade in a cab with a fractured leg unbound, and so handled that a simple fracture has been converted into a compound; no longer hear of miners carrying a comrade home with compound fracture of the thigh and lacerated artery, bleeding at

every step of the way, leaving a track of blood from the place of the accident to the man's home, so that when seen by the medical man, and a necessary amputation has been performed, the man sank from loss of blood and exhaustion.

What we shall hear of is, as has fallen under our own immediate knowledge, the very converse of this last case, where hæmorrhage was arrested, the limb placed in restraining splints, and the man carefully removed home from the coal-pit, with ultimate recovery, a sound and useful leg being the result of early treatment of a temporary but efficacious nature. We shall hear of policemen being slow to suspect a man of being merely drunk when he smells of drink, and is insensible, until they are quite sure that there is no other cause; and even where drunkenness is the cause of insensibility, they will know that it is in itself a state of danger, and see that the unfortunate is properly and humanely treated. We shall hear more of such splendid services as were rendered by ambulance pupils at the two great railway smashes which took place near and at Peniston on the M., S., and L. Railway, and at Hexthorpe, near Doncaster.

The more thorough, though elementary, the instruction given is, and the more general it becomes, the more voluminous will the evidence become of its great utility.

We are glad to say hospital surgeons bear favourable testimony to the much better manner in which accidents are sent or brought in by ambulance pupils to the institutions to which they belong than was formerly the case.

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