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# THE PRACTICAL PART OF FIRST AID

BY

LT. COL. C. B. PARIS.

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# AID-OLOGY

OR

## FIRST AID TO THE INJURED

## IN ITS PRACTICAL PART

## MECHANICAL AND MENTAL

BY

LIEUT-COL. C. B. PARIS

DEPUTY-CHAIRMAN AND HON. SECRETARY OF THE

LIVERPOOL CENTRE

WITH ILLUSTRATIONS

*Compiled and Written especially for the use of the Liverpool Police Force and "Lay Helpers," and for the General Reader as well.*

LIVERPOOL

*EDWARD HOWELL,* 28 *CHURCH STREET.*

1887

[*Entered at Stationers' Hall*]

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# CONTENTS.

# PREFACE.

In the year 1882, I ventured to issue a pamphlet suggesting "Lay Help," by Certificated Members of our classes, in teaching the Practical Part of "First Aid"; since then, the assistance of many such, who have readily come forward, has been of great service in this Centre in relieving the Medical Lecturer and in perfecting the pupils in the Practical Part, which cannot but be regarded as all-important.

After continued active work in this teaching for about six years, I am more than ever impressed with its value, but think there is a felt want for some book treating of the Practical Work alone, systematised, and suitable, not only as a pocket reference, but as a guide to the student in what he has to

learn, and a help during the *self-training*, which every pupil should commence upon receiving his Certificate of proficiency. I trust this essay may also assist the *Recollection*, and thus be serviceable to the "Lay Helper" as well as to inquirers, even should it fail to supply fully the felt want. It is hardly necessary to add that it is in no sense intended to take the place of, or to interfere with, Shepherd's, or any other of the various publications on "First Aid," neither indeed can it do so, inasmuch as it deals with the Practical Part only, whilst the other works deal with the whole subject in its entirety.

I have endeavoured to avoid prolixity, and to limit myself to the requisite; where I have thought it useful to enlarge, I have thrown the matter into the Notes and Appendix. I have endeavoured to make it intelligible to the "working man"

If there be a weak point in "First Aid," it may be looked for in the loss of touch with the Certified Members of the classes, after examination, who, unless they keep it up, must inevitably get rusty, or deteriorate in dexterity. True, this danger is, perhaps as far as possible, safe-guarded by the Association in their provision of re-examination and formation of "Ambulance Corps," as well as by urging upon members to meet together for periodical practice: yet, there is no doubt that many of them remain satisfied with having obtained their certificates, and, resting there, fall off. When their regrets arise, as doubtless they will, then perhaps this little handbook may help them to recall what they may have forgotten. Whether or not, if one has gained certain knowledge from experience, practice and study, which may be useful to our fellow creatures, is it not both a pleasure and a duty

to try and impart it to others who may have less experience ?

Is there a greater satisfaction than saving the life, alleviating the suffering, and lessening the further injury of the unfortunate victims of accident we happen to witness ? Assuredly none, unless it be the saving of their souls, as well as their bodies !

Good work has been done in Liverpool by First Aid Agency, particularly by the Police, many testimonies of which have been afforded.* Compound fractures are fewer; let us hope, will soon be things of the past; patients taken into the hospitals arrive better cared for than formerly. Several lives have been saved and prolonged ; and here it may be proper, and not out of place to acknowledge, with gratitude, the kindness and ready support given by the Medical Profession in Liverpool, notably by Dr. Rich: who has instructed something like

* See Appendix—Note A.

one-half of the City Police Force; the appreciation and assistance of Captain Nott-Bower, the Head-Constable. To Dr. Bell, of New Brighton; and to the many other Medical men who have generously come forward to lecture to the classes, we are all indebted.

It only remains for me to solicit the indulgence of my readers, and the forbearance of my critics, for the imperfections of this essay, in view of the motives that prompt it.

C. B. P.

*June*, 1887.

# *AID-OLOGY.*

*"If a better system's Thine*
*Impart it freely—else, take mine."*

VIEWING this subject and teaching thoroughly, from all points, in every way, and dispassionately, my readers will admit that it deserves a title of its own—that it is worthy to rank with any of the sciences—partaking of most of them, but *sui generis* (of itself and by itself,) a complete, perfect, science or art. Why then is it not deserving of its own title, and if so, until a better is devised why not know it here at least as

"AIDOLOGY"?

This title has its uses, otherwise it were mere conceit: it conveys the idea of a distinct speciality, it is more convenient and expedient. Replacing several words which fail to convey

a proper idea of the subject by a single word that does, it tends to disabuse the mind of its being any interference with the Medical Profession. It disposes of the gentle cavil sometimes heard of,"a little knowledge is a dangerous thing," which of course could not apply to a science or art complete *sui generis*. The using this aphorism denotes ignorance of the subject—or perhaps a sneer, but could not apply to Aidology any more than to Theology—could only apply in each case to an imperfect knowledge of either. It may take some time to instil into the public mind that Aidology is not Medical, in the conventional sense of that term; nor can there be a more fatal error, than for pupils to be lectured to, as if they were medical students. If contended that it is more of an Art than a Science, and that therefore the termination ology is inapplicable or illogical, that is traversable; refer for instance to Pharmacology.

Undoubtedly the best "First Aid" is your Medical man, but he is usually not present at an accident. The excellent and valuable system of Horse Ambulances is demonstrative of its necessity, has in fact grown out of the felt want of it, but these do not and cannot supplant it, they simply bring the Medical man earlier upon the scene, and first aid more or less is, and must be, rendered before his arrival. The need of this knowledge, which every man, woman and child should possess, is patent to all; therefore requires no expatiation here. Teaching the various parts, organs, and functions of the human body, those which are necessary for proficiency in "First Aid;" dwelling on the perfection of the construction of this house of the Soul on Earth, made perfect from the beginning: tends to elevate the mind, inspires respect for, and induces care of, that body; gives a more exalted notion of the Almighty power. This First Aid teaching in-

duces love to our neighbour, to be more kindly affectionate, to unselfishness, to "give the cup of cold water." Certainly it tends to the *prevention* of accidents, saves life, lessens injury and suffering, and often engenders a desire for further knowledge.

A great authority has said that, "in the first ten minutes after an accident, more good is done than all the doctors in England can do afterwards." Is not the corollary of this, that often more *harm* is done in the first ten minutes than can be set right in days and months, if ever?

Everyone, in every station of life, is subject to be suddenly reduced from the vigour of manhood to a helpless cripple by a broken axle, a loose grid, a sleepy signalman, a drunken cabman, a piece of orange peel, or a thousand other things.

Proofs negative, are often as strong as proofs

positive, so suppose we commence with the consideration of

## *WHAT IT IS NOT.*

It is assuredly neither

**Theology**
**Physiology**
**Psychology**
**Pharmacology**
**Biology**
**Phrenology**
**Crainology**
**Anatomy**
**Surgery.**

nor any of the other Ologies.

It is not "Doctor's Lore," defining that, as high learning and training, with the aid of ancient and modern science, to discover and treat the ailments of the human body; nor does it attempt the Doctor's work, neither make use of, nor teach difficult *technical terms*

nor *appellations.* In this sense one might almost venture to hope that some day, the Medical Profession itself may lessen or drop the use of dead languages in prescriptions and descriptions, and thus make them more comprehensible to the ordinary reader, without his having to refer to a Latin Dictionary, a Greek Lexicon, and a good Pharmacopia.

## *WHAT IT IS.*

As explained in the Preface it is its own Ology.

It is First, Earliest, Primary, Instantaneous and efficient help, whilst Medical aid is being obtained.

To ascertain and understand

## *"WHAT'S THE MATTER."*

How, to place the injured body in the proper position, to handle and carry it, to know the right thing to do at the right moment, and

"*THE REASON WHY.*"

To be cool, calm, collected, clear, quick, sharp, stout-hearted, courageous, kind, gentle, ready-handed, ready-witted in emergencies; to

"*IMPROVISE.*"

Extemporise and devise, out of whatever may be at hand, the materials you require; to follow Nature, which is always simple; to use whatever surrounding objects and circumstances can serve your purpose. What First Aid is, may be understood and appreciated by the work it has done, and is doing, and most people have had the distressing experience of not knowing what to do, whilst waiting for the Medical man, fervently wishing they knew what was the matter!

Surgeon Major Hutton, one of the Examiners of the Association, who often comes to Liverpool, who has done so much for the spread of this knowledge, and is so strong on the

necessity of the practical part of it, says, "What then is this First Aid? I rely far more on some little incident easily told, easily understood, and which explains the whole in simple, plain language, and appeals to common sense, than I do on statistics, tabulated forms, and blue books;" and then he gives instances of a broken leg, a severed blood vessel, a bad burn, suffocation, &c., where First Aid has saved life.

## *HOW TAUGHT.*

### SEND IMMEDIATELY TO GET A SURGEON.

Simply and easily, so as to be within the grasp of the most illiterate and of the weakest intellect, yet worthy of the most learned and of the strongest, suited to all sorts and conditions of men.

It is taught in the English language in two parts, the Medical and Practical. The Practical *alone* concerns us here, and this may be said to be divided into two parts, the *Mechanical* and the *Mental.*

This practical part is systemized under different heads, and taught in this centre principally by ocular demonstration models, exhibiting order of many of the organs and functions of the human body, or the apparatus of Animal life; by simulating cases in the Syllabus, in their full details, representing as far as possible the *actual,* so as to familiarise the pupils with the probable surroundings and attendant circumstances of the *real,* and thus accustom them to correct and prompt action in emergencies.

They are taught to deal with the human body, particularly when insensible, as a beautiful and perfect piece of mechanism or clockwork, actually *that,* and that *only*. First Aid is thus taught in an attractive, simple, plain, easy, self-evident way, so that the pupils not only know what to do, but are able to do what they know.

The sciences alluded to in a previous page,

although not taught, are drawn upon, and as far as need be, pressed into the service to form a perfect Aidology.

All the parts, organs, and functions of the human body necessary, are taught and explained by, and compared to, various mechanical appliances, tools, implements, and those familiar every-day things with which we are conversant, and which owe their invention, in principle at least, to a knowledge of the human body, from which they are copied; the object being, to destroy in the pupils' minds the idea of there being profound mystery in regard to the common functions and mechanism of the human body, as far as Aidology is concerned—for example: to give an idea of the hip joint, the ball and socket joint of a chandelier would be shewn. Of a nerve—a section of submarine cable, or a telegraph, or bell wire. Hinge joints are compared to door hinges, bones to levers; the legs and pelvis to an arch; a bleeding blood-

vessel to a burst pipe, or leaking hose, and so on throughout. It may not be superfluous to ask here, can a common mind be taught this, without any Medical knowledge? Let us be Scotch, and answer it by asking another! Has he ever "knocked up" a burst water-pipe in his house? Does he know the water system in his house? Has he ever made his kitchen clock to go? Has he ever used his kitchen bellows? Has he ever temporarily repaired the broken leg of a chair? Has his communication with his kitchen never been interrupted by the breaking of a bell wire? Does his wife not know she must keep the air out of her jam-pot or the jam will go bad? And so on!

The Liverpool Centre has its Syllabus and its own Rules for the formation of classes. The system is explained in the Inaugural address therein referred to. This address has been lately thrown open to all interested in First Aid, with good results. Although in

the Rules it is set out that the last half hour is to be devoted to the Practical teaching, yet this part can be taught before the Medical lecturer takes the class, or after he has finished his course, as most convenient to him; it often saves him time and trouble when the class is taught the Practical part first, and I find this to work well.

It is a rule of the Association that classes must be instructed by a duly qualified medical man, but "Lay Helpers" are permitted to teach the practical part.

A "lay helper" must be a certificated member, duly qualified and able.

## *LECTURE I.*

Treats of the Esmarch Bandage; how to hold, fold, and apply, in 33 methods for different injuries—Its nature and use explained—The reef knot taught.

Pupils to bandage each other until perfect. Always to hold and work with the point or apex, and learn where that rests. (See Figures A. B. C. D.) Used to tie on, or keep a dressing or something else, in its place, therefore must be put on properly and made to fit with that object, and with a reef knot always.—Improvise bandages.

## *LECTURE II.*

Teaches Hand Seats, Arm Stretchers, Lifting, carrying, transporting by these means—Method to assist a person too weak to bear all the weight of his own body, where no ill effects

arise from his being on his feet.—How to improvise stretchers.—Each pupil to be practised in each.

*LECTURE III.*

Stretcher exercise, and perfect pupils in No. 2. Position of the principal organs in the body.—Course of the Blood currents: compared to the water system of a town.

*LECTURE IV.*

Practice the various points on the body, where, by finger pressure, circulation can be at once arrested (bleeding stopped). See Figures E. F. G. Each pupil to *do* it: compare to the bursting of a water-pipe or hose. Position of bleeding limb and body; also position, and other methods of instantaneous arrest of bleeding from arteries, veins, and capillaries, using ocular demonstration model. Explain signs and consequences of broken limb-bone, and necessity for binding it up. Broken bone com-

pare to two carving knives, loose in the limb, only fastened by their handles, with Model.

### *LECTURE V.*

Practice putting up fractures with splints, to improvise splints, pads, padding, &c. (See Figure J). Simulate such cases, as also, the various cases of bleeding, calling upon the several pupils, each to render in turn, First Aid.

### *LECTURE VI.*

Practice artificial respiration on ocular demonstration dummy, or failing this, use a pair of common kitchen bellows. Explain practical part of restoring the respiration by, and with, a pair of common bellows. Catechise generally on previous lectures. Simulate all cases of injury taught thus far, and particularly the restoration of the apparently drowned and suffocated, from whatever cause.

### *LECTURE VII.*

Treats of "What's the matter." How to examine body to discover the injury, and to judge by external appearances. The practical part of poisons : bites from rabid animals ; burns and scalds.

### *LECTURE VIII.*

Practical part of brain compression, apoplexy, and concussion, with models ; faints, shocks, intoxication, epilepsy. Position of body—Simulate cases.

### *LECTURE IX.*

Practical part of sprains, cut throats, rupture, bruises, signs of death ; catechise generally. Simulate cases of injuries taught from lecture vii. Enforce the Mental part.

# *NOTES ON LECTURES.*

It is difficult to set out a hard and fast routine, because of time and other circumstances; the lay helper therefore, may use his discretion in varying the routine thus set out. In nine lectures the class should be proficient; it should, however, be kept at work up to the date the examiner is sent by London, in simulating cases and catechising, and impressing all points on the memory of each member.

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## No. 1.

Insist upon the bandage being held, and worked, by its apex, or point, putting the point in its proper place first; habituate them to this, as it is of real importance, ensures its speedy and correct application, and avoids the fumbling with it, which otherwise takes place, more or less. Explain its use fully,

and how rope or string, at a pinch, may often do to improvise with, or a large pocket handkerchief.

## No. 2.

It is important that the members should be able to make the hand-seats instantaneously—number off the class and keep them at it, until all can do it the same instant.

Make the members lift and carry each other on the hand-seats, &c.; have two poles wherewith to improvise stretcher, with blanket, table-cloth, or great-coats.

Your First Aid may often meet with a case (of internal injury for example) where his duty will be confined to *doing nothing*, but doing that *perfectly*, that is to say, only to lifting the patient on to a litter or stretcher, but so evenly and well, as not to move the important organs of the body.

## No. 3.

Carefully practice the stretcher exercises. The medical man will have taught the position and

function of the heart, lungs, arteries, veins, &c. ; see that they remember. Draw a comparison, point by point, between the water system of a town, and the circulation of the body, to impress it on their memories, the heart the reservoir and pump, main pipes down centre of street—smaller ones to the houses, carrying the pure ; then, identical pipes to carry it away, after use.

## No. 4.

Most of the pupils will have had experience of the bursting of a water pipe in a frost, and how it was immediately *hammered* up, to stop the flow of water. Upon which side of the leak was it hammered ?

Make them actually stop the pulse by digital pressure on the arteries, as taught by the medical man. See they understand the difference between Simple, Compound, and Comminated fractures.

## No. 5.

Explain and enforce the value of the *sound* leg as

a splint for the broken one ; the main object to attain is to bind up the broken bone, *as it is*, so that it is not moved by them, nor be movable after they have bound it up, consequently, until they have made the broken bone secure, they must *not* put the feet together, nor straighten the limb, nor the foot, as some are taught ; this is not for the First Aid to do ; because in so doing he is pretty sure to move the broken bone. A fractured thigh must be put up in splints independently, before attaching the long splint. (See Figure H.)

## No. 6.

As to the vital point, " What's the matter," your First Aid judges by what he *sees*, as he approaches, and by what he hears. He notes the position of the body, looks for the signs he has learnt denote certain injuries, and judges accordingly ; he loses no time over this, and feels for fractures as he has been taught. All simulated cases must be made to represent, in all their details, the actual and real, and

the members taught to apprehend the probable surrounding circumstances, as if they were face to face with the real accident and injury.

## No. 7.

## *APPARENTLY DROWNED.*

**Send for Doctor ; Dry Clothing or Blankets.**

Set to work the moment the body is got out of the water, rip up seams of clothing, and bare chest and stomach, to expose them to fresh air ; turn body face downwards, placing a firm roll of clothing under diaphragm, and forearm under forehead ; press on back over the roll for half a minute, or as long as fluid flows freely from mouth. The head and chest should now be *lower* than body if possible. (See Figure K.) Next, turn body over on to its back, placing the roll of clothing under the shoulder blades ; clean out mouth, draw forward tongue well over chin, and keep it there, so as to open the wind-pipe, clean out mouth and nostrils. Commence artificial respiration the moment the tongue is out ; continue it even for hours until death

is certain, or medical man pronounces the patient dead. When natural breathing is restored, but never till then, commence restoring (promoting) the circulation ; when circulation is restored, put to bed ; if sensible, warm tea or coffee may be given.

### Artificial Respiration.

When ready for it, inflate and expel alternately, fresh air into and out of the lungs, 15 or 16 times a minute, or breathe heavily yourself, *keeping time with your own deep respiration* ; pause two seconds with the arms full stretch above shoulders on each side of head, press elbows into ribs and fore-arm over diaphragm another two seconds, just as you would use common bellows to blow up your fire, the arms of the body representing the handles of the bellows. (See Figure L).

### Restoring the Circulation.

Never attempt this, unless and until the natural breathing is restored ; drive the blood along the veins by forcing, pressing, or stroking, it upwards

towards the heart; in addition, let hot bricks, wrapped in cloths, be put under arm-pits, thighs, to soles of feet, to restore heat, to help. *(See Appendix—Note B.)*

## No. 8.

As your First Aid man is taught neither Pharmacy nor Chemistry, he will not be taught antidotes, therefore your lay helper simply explains that the poison having no right to be in the stomach, must be got out of it as quickly as possible, by an emetic in all cases, except where corrosives have been taken, then, so as not to burn him twice over, a wine-glass full of sweet oil, unless Phosphorous be taken, in which case, milk instead of oil. A table-spoonful of mustard, in water, is a good emetic.

### For Bites by Rabid Animals.

The class is reminded of the rate the blood travels through the body. In view of this, a tourniquet above and below the bite is instantaneously put on, so as to confine the virus to the spot, and then to wash and suck the wound.

### For Burns and Scalds.

The object is to keep the air out, to supply the place of the destroyed skin by cloths soaked in vegetable oil over the part. A person in flames is to be instantaneously thrown flat down, and rolled over and over, in anything you can get hold of, or without it, until you can get it.

---

## No. 9.

There is generally confusion in the members' minds as to concussion and compression of brain; if the lay helper has not the model, let him explain that the meaning of the two words depicts the injury. Concussion: shaken. Compression: squeezed, or pressed.—Given a hand-box with glass ball suspended from inside the lid; hit the box a moderate blow, you shake, or cause to oscillate, the ball. For compression—*Sit* upon the box, you break the ball by pressing upon it. Faints—Want of blood to the head; put head low. Shock—body cold; restore circulation and heat.

## No. 10.

The lay helper explains, and the members practice to bandage up the sprained ankle-joint as tightly as possible. In cut throats, the would-be suicide has more often only cut the wind-pipe, or into the mouth, yet he does not know this, and the state his mind will be in, his nervous condition, his apprehension of immediate death, must be remembered; so that, whilst busy with your hands, convince him with your tongue, that he need not die from it, he has not known how to do it; thus you reprieve, and thus you calm his nerves.

Following the medical instruction, your First Aid must keep cold, un-tempered air from entering the lungs through the cut. For rupture (bowel) teach the bandage and position of body. The practical sign of death taught here, is the packthread round the tip of the finger.

For practical part of Paralysis, Nerves, and Muscles, see Appendix—Note F.

# *SIGNS OF INJURIES.*

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## EXTERNAL BLEEDING.

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**From an Artery.**—Bright red colour; is thrown out in jerks, corresponding to heart, or pulse, beat.

**From a Vein.**—Colour dark purple (nearly chocolate), flows, or wells, out of wound.

**From a Capillary.**—Oozes out, and is either of the above colours, or mixed.

## INTERNAL.

If from the lungs it is *frothy* and is coughed up. If from stomach it is dirty, mixed with contents of stomach, and is *vomited* up.

## FRACTURES.

**Skull.**—You can feel the depression.

**Base of Skull.**—Bleeding from the ear, mouth, and nose.

**Collar-Bone.**—Shoulder out of shape, patient supports the arm by holding it at the elbow, inclines his head towards the side of the fracture.

**Jaw.**—Irregularity of shape, and of line of teeth, inability to move jaw.

**Ribs.**—Patient catches his breath, or breathes short, cannot make a complete respiration, complains of pain at seat of fracture, which you may feel.

**Limbs.**—You may feel the irregularity in outline of bone, the lump caused by the ends overlapping; in the case of a thigh or leg, by the unnatural position of limb, and, or, foot; limb is powerless from fracture downwards.

**Spine.**—Paralysis, or inability to move below the seat of fracture.

**Pelvis.**—Patient cannot move without great pain; signs of crushing or pressure on the clothes over the abdomen; circumstances of the accident

may lead you to suspect it; difficult to feel it, for a First Aid.

**Knee-Cap.**—You can feel the two portions of the cap, into which it is broken, apart from each other.

**Fractures Generally.**—You can almost always feel.

**Shocks.**—Patient's body very cold, face pinched and pale, breathing feeble, pulse weak, seems scared or frightened, may have had a sudden alarm.

**Rupture.**—Patient is aware of having strained himself, feels uneasiness at the part, a swelling, at first only a small lump.

**Faints.**—Face and lips turn very pale, giddiness, a clammy sweat breaks out, hurried breathing, insensibility.

**Compression of Brain.**—Stertorous breathing, complete insensibility, eyes insensible to light.

**Apoplexy.**—Same signs as in compression, face flushed or very pale, paralysis on one side of the body.

**Paralysis.**—Face drawn on one side, squinting, twitching of muscles on one side of body, eyes fixed, dilated, irregularity in size of pupils; no wrinkles on affected side. If arising from injury to the head, paralysis will be on the opposite side of the body.

**Concussion.**—Insensibility only partial, breathing very quiet, *no stertor*, may be able to answer a question, then relapse, will probably vomit.

**Epilepsy.**—Commences with a peculiar cry, twitching of body, convulsed, hands tightly clenched, face livid, froth from mouth, apt to bite tongue.

**Intoxication.**—Insensibility only partial, can be roused, and then often shows fight, sickness, stupor, stubborn, tumbles about.

**Hysterical Fits.**—Laughter, crying, sobbing, shamming, all intermingled; patient has generally one eye open to watch the effect upon bystanders.

## *STRETCHER EXERCISE, No. I.*

**For three Bearers. To be used when space will allow.**

1. THE Instructor selects the Bearers and numbers them—1, 2, 3, at his discretion. Should one man be taller and stronger than the others, he should be styled No. 1, as he will have to bear the heavier part of the burden.

All orders will be given by No. 3 *

2. "**PLACE THE STRETCHER.**"

No. 1, taking the head of the stretcher, and No. 2 the foot, places it in a line with the Patient's body, the foot of the stretcher being close to his head.

No. 3 attends to the Patient, assisted by Nos. 1 and 2 when necessary.

3. "**FALL IN.**" At this Order,

No. 1 places himself at the Patient's right side.

---

* Bearers should be taught to take any of the positions named in the following Exercises, whether that of No. 1, 2, 3, or 4 Bearer.

No. 2 at his left side, and both bearers face each other.

No. 3 takes position on the injured side in a line with the Patient's knees.

*Note.*—The duty of No. 3 will be entirely to look after the injured part of the Patient's body or limbs, to see that no bandages or splints become displaced, and also that No. 2 Bearer, in lifting or carrying, does not in any way touch the Patient's feet.

When everything has been arranged for the removal of the Patient the order will be given—

4. "**READY.**"

Nos. 1 and 2 now each sink down on one knee and grasp each others hands under the shoulders and thighs of the Patient, whilst No. 3 places his hands underneath the lower limbs, always taking care, in case of a fracture, to have one hand on each side of the seat of injury.

5. "**LIFT.**"

All three Bearers rise together to their feet, keeping the Patient in a horizontal position.

6. "**MARCH.**"

All take short side-paces until the Patient's head is over the pillow of the stretcher.

7. "**HALT.**"

All three Bearers remain steady, and wait for the next order.

8. "**LOWER.**"

The Patient is placed gently on the Stretcher, and the Bearers then stand up.

9. "**FALL IN.**" On this order being given,

No. 1 places himself at the head of the stretcher with his face towards the Patient, No. 2 at the foot with his back to the Patient, and No. 3 places himself at the side of the Patient.

10. "**READY.**"

Nos. 1 and 2 stoop down and grasp the handles of the stretcher, having previously adjusted their shoulder-straps in case they are used.

No. 3, as soon as he sees all is right, gives the word—

11. "**LIFT.**"

The stretcher is now raised to position ready for moving off.

12. "**MARCH.**" On this word being given,

No. 1 steps off with the left foot, and No. 2 with the right. The step should be a short one of twenty inches, and taken with bent knees just from the hips.

13. "**HALT.**"

The place of destination being reached, on the word "Halt" being given, the Bearers remain steady in position.

14. "**LOWER.**"

At this order the Bearers place the stretcher on the ground, and then stand up.

15. "**UNLOAD STRETCHER—READY.**"

The Bearers prepare to take the Patient off the stretcher.

16. "**LIFT.**"

The Bearers raise up the Patient as before instructed.

17. "**LOWER.**"

The Patient is carefully lowered upon the vehicle, bed, or other place to which it has been designed to carry him.

*STRETCHER EXERCISE, No. II.*

**For four Bearers. To be used when there is not sufficient space for carrying out Exercise No. 1.**

The Instructor numbers the Bearers—1, 2, 3, 4. All orders will be given by No. 4.

2. "**FALL IN.**"

At the word "Fall in," Nos. 1, 2, and 3 take position on one side of the Patient. No. 1 places himself at the Patient's shoulder, No. 2 near the middle of the body, No. 3 near the Patient's feet. At the same time No. 4 places the stretcher on the ground by the other side of the Patient, and remains standing near its centre facing the other Bearers.

3. "**READY.**"

Nos. 1, 2, and 3 stoop down, and kneel on the left knee if they are on the left side of the Patient, on the right knee if they are on the right side of

the Patient. They then proceed to take hold of the Patient :—No. 1, passing one of his arms beneath the Patient's neck and the other under his shoulder-blades ; No. 2 passing both arms under the middle of his body, one above, the other below the buttocks ; and No. 3 passing both arms under the lower extremities, excepting in case of fracture, when he must place one hand on each side of the broken bone, so as to steady it. No. 4, when the word "Ready" is given, grasps the near pole of the stretcher with his left hand, and the opposite pole with his right hand, near the centre.

4. "**LIFT.**"

On the word "Lift" being given, Nos. 1, 2, and 3 raise the Patient up, each at the same time placing on the knee which is not touching the ground his elbow of the same side. While Nos. 1, 2, and 3 are thus raising the Patient, No. 4 moves the stretcher into proper position under him and kneels down on one knee by its side.

5. "**LOWER.**"

At the word "Lower" Nos. 1, 2, and 3 carefully

lower the Patient down to the stretcher, while No. 4 at the same time assists in supporting and placing him on it.

6. "**STAND TO STRETCHER.**"

On this order being given, each Bearer stands up:—No. 1 goes to the head of the stretcher with his face towards the Patient; No. 2 to the foot, with his back to the Patient; while Nos. 3 and 4 remain in position on each side of the stretcher.

7. "**READY.**"

Nos. 1 and 2 grasp the handles of the stretcher, having previously adjusted their shoulder-straps in case they are using them.

8. "**LIFT.**"

At this word, Nos. 1 and 2 Bearers raise the stretcher steadily together and stand up.

9. "**MARCH.**"

All being ascertained to be in order, on the word "March" being given, Nos. 1 and 2 Bearers move off:—No. 1 stepping off with his left foot, and No. 2 with his right foot. Nos. 3 and 4 march on each

side of the stretcher. On arriving at the place of destination, the following orders are successively given :—

10. "**HALT.**"

11. "**LOWER.**"

12. "**UNLOAD STRETCHER—READY.**"

13. "**LIFT.**"

14. "**LOWER.**"

N.B.—These orders, viz., Nos. 10 to 14 inclusive, are to be carried out in a similar manner to orders Nos. 13 to 17 in Exercise No. 1.

## *STRETCHER EXERCISE, No. III.*

When only three Bearers are available, and the space is limited as before, the following alterations must be made in the foregoing (No. 2) Exercise.

1. The Instructor numbers the bearers—1, 2, 3. All orders will be given by No. 3.

2. "**PLACE STRETCHER.**"

No. 1 Bearer places the stretcher on the ground

by the side of the Patient and as close to him as practicable.

3. "**FALL IN.**"

The three Bearers take the same positions on one side of the Patient, as laid down in Exercise No. 2.

4. "**READY.**"

Nos. 1, 2, and 3 kneel down, placing themselves as close to the Patient as they conveniently can, and then take hold of him as directed in Exercise No. 2.

5. "**LIFT.**"

Nos. 1, 2, and 3 raise the Patient as directed in Exercise No. 2.

6. "**LOWER.**"

At the word "Lower," Nos. 1, 2, and 3 lean forward so as to carry the Patient over the stretcher, and then carefully lower him down upon it.

7. "**STAND TO STRETCHER.**"

At this direction No. 1 goes to the head of the stretcher, No. 2 to the foot, and No. 3 remains in position at the side of the stretcher.

The remainder of this Exercise will be precisely the same as is given in Exercise No. 2, from orders 7 to 14, both included—the instruction for No. 4 Bearer to walk by the side of the stretcher being alone omitted.

### *STRETCHER EXERCISE, No. IV.*

**For use in Mines and narrow Cuttings where two men only can be engaged.**

Necessary First Aid having been given, Nos. 1 and 2 will carefully place the stretcher in a line with the injured man's body, the foot of the stretcher being, if possible,* close to his head.

No. 1 will give the word "**Ready,**" when both get into position as follows :—

No. 1 places his feet one on each side of the Patient between his body and arms, the toe of each foot as near the armpits as possible, standing over

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* It is not advisable to be too particular as to the head or foot of a stretcher in a mine, as it would probably be quite impossible to reverse it, and it is always competent for the Bearers to lower the pillow.

the man. He then stoops down and passes his hands between the sides of the chest and the arms underneath the shoulders, and locks the fingers.

If the Patient's arms be uninjured he may put them round the neck of No. 1, and by this means greatly assist him in lifting.

No. 2 at the same time places his right foot between the calves of the injured man's legs, as close to the knees as possible, and his left foot at the injured man's right side, close to the crest of the hip; * he then kneels down and passes his arms round the outside of the Patient's thighs at the lowest part, and locks his fingers behind just at the bend of the knees.

When both are ready, No 1 will give the order **"Lift and move forward."** The Patient is then to be slowly lifted just sufficient to allow his body to clear the stretcher. Both Bearers will slowly and gradually move forward, No. 1 by very short steps,

* When the Patient's legs are in splints and tied together, the feet of No. 2 must necessarily be placed outside.

and No. 2 by bending his body forward over his left thigh, by which means he exercises a pushing movement which very greatly assists No. 1. No. 2, when he has bent his body forward as much as he can without moving his feet, advances his right foot to his left, and then again advances his left foot and bends his body forward. This movement is to be repeated until the Patient is laid on the stretcher.

The Bearers will then act in the ordinary manner as far as the nature of the locality will permit.

*(Signed)* JOHN FURLEY,

*Deputy Chairman, S.J.A.A.*

This Syllabus is not to take the place of, but is subject to, the Official Syllabus, No. 58, with its explanatory instructions, No. 68, for Examiners.

# St. John Ambulance Association.

*LIVERPOOL CENTRE.*

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## SYLLABUS of Instruction in FIRST AID to the Injured.

### FIRST LECTURE.

General description of the Structure and Functions of the HUMAN BODY, but going into NOTHING more than what is absolutely essential for imparting the simple knowledge of how to render FIRST AID until a medical man can be procured, excluding all medical and technical terms as far as possible.

### SECOND LECTURE.

Direction of Blood current in Arteries and Veins. How to distinguish different kinds of Bleedings.

POINTS at which, and How, by digital pressure and use of touriniquet, circulation can be instantly arrested. Heart Action. Primary Circulation. Difference between Arteries and Veins and Capillaries (their construction and bleeding). Of Varicose Veins. Cut Throats. The most common injuries to Blood Vessels—how to diagnose them synoptically with clothes on—consequences if FIRST AID be not rendered.

## THIRD LECTURE.

Fractures: their signs and kinds, and where most frequent. How to ascertain, without pulling the patient about. How to apply splints or other restraining apparatus; to improvise such in order to render effectual FIRST AID—consequences of not doing so, and of improper moving, &c. Sprains. Dislocations. Position of limb after being secured.

## FOURTH LECTURE.

Unconsciousness: its causes and effects. Concussions. Shocks. Collapse. Fits of all kinds. Faints. Suffocations. Apparently drowned. Hang-

ing. Inebriations. Bites from rabid animals. To diagnose in the simplest and surest way these cases, and how to render FIRST AID in each.

## FIFTH LECTURE.

Burns. Scalds. Choking. Poisons (the latter only treated very superficially, having regard to FIRST AID ONLY). Gas and Charcoal Fumes.

**The Lecturer may increase the number of Lectures and divide the Subjects here laid down, as may be found most convenient.**

*The Practical Part can be taught by a "Lay Helper."*

**All Certificated Pupils are expected to be proficient in rendering FIRST AID in the following cases :—**

*1. HÆMORRHAGES.
*2. FRACTURES.
*3. UNCONSCIOUSNESS.
*4. BURNS AND SCALDS.
5. POISONS.
*6. SUFFOCATIONS.
*7. DROWNING.
*8. INTOXICATION.
9. INJURY TO SPINE.
10. SPRAINS.
*11. BITES FROM RABID ANIMALS.
12. SHOCKS AND FROST BITE.

*13. Hanging.
*14. Cut Throat.
*15. Sudden Fits.
16. Faints.
17. Sunstroke.
18. Rupture.
19. Frostbite.
20. Bruises.
21. Treatment of Wounds.
22. Signs of Death.
*23. Choking.
*24. Bandaging.
*25. Lifting, Carrying, Supporting.
*26. Splints.
*27. Stretcher Use and Drill.

*Those with an asterisk are of primary importance.*

The instruction to have special regard to the probable circumstances and surroundings in which the First Aid is likely to be called into requisition.

## QUESTIONS.

These questions are formulated with the object of enabling First Aid to test his own proficiency; let him see how far he can answer them from his own recollection, without reference to any book.

1. Describe Lifting, Carrying, Stretcher Drill. 4 and 3 handed-seats, Arm Stretcher, Assisting.

### Fractures.

State what you would do before moving a person with broken leg.

2. Describe Simple, Compound, Comminated.

### Bandages.

3. Describe the nature and uses of Esmarck, how you hold and fold it, and where the point goes (is placed) in the following :—

Skull, Chest, Back, Shoulder, Hip, Arm-sling.

4. How you bind up for Broken Collar Bone, Upper and Lower Arm, Ribs, Jaw, Spine, Pelvis, Thigh, Knee-cap, Leg (Pott's fracture), Fingers.

## External Hæmorrhages.

**5.** Describe points in the body for Digital pressure, and

**6.** Describe First Aid for Arterial and Venous bleeding of Head, Cheeks, Lips, Nose, Upper and Lower Arms and Legs, Palm of Hand, Varicose Vein, position of injured Limb, stating what you do 1stly, 2ndly, 3rdly.

**7.** Describe First Aid for Internal Bleeding, stating the difference between that from Lungs, and that from Stomach.

## Circulation.

**8.** Shortly describe direction of blood current in arteries and veins, and on which side of the wound you apply pressure to stop bleeding; how you distinguish arterial from venous bleeding; state which is the most dangerous.

## Suffocations.

**9.** Describe in detail First Aid treatment for the apparently drowned, and for the apparently suffocated on shore.

### Fits and Sundry.

**10.** Describe signs of, First Aid for, position of body in Apoplexy, Epilepsy, Faints, Concussion, Compression, Dislocations.

**11.** Describe "what's the matter" and First Aid for, Sprained Ankle, Bites from rabid animals, Burns, Scalds, Choking, Rupture.

**12.** Describe First Aid for Cut Throat, Hanging, Sunstroke, Bruises, Person in Flames, Shock, Poisons (Narcotics and corrosives as well) and the reason for such First Aid.

### Improvising.

**13.** State generally what this means.

## *THE MENTAL PART.*

AFFECTED and influenced as the body is by the mind, it seems scarcely needful to enforce the requirement of some sort of mental teaching to the First Aid, such as explaining and urging the culture of the imagination, or image-making power, and of an exact and ready memory.

A point has been made of its being easily learnt, thus it is easily forgotten, every effort therefore is made to impress it upon the memory.

Pupils are urged to "picture to themselves" the object, or scene of the accidents, set out in the Syllabus—reproducing in their minds all they have been taught, have read, or can fancy, to make the ideal accident complete with the real, and then ask themselves. Should I be the READY man, proficient to render efficient

"First Aid"? This self-training in What should I do? is the only way to make "the ready man."—*(See Appendix, Note C.)*

As to memory, and recollecting, and reproducing, lecturers do well to remember that "*Recording Power*" depends upon the degree of *Attention*, and attention upon the *Attractiveness* of the subject.—*(See Appendix, Note D.)*

The practical part is made attractive.

Your proficient First Aid being a ready man, goes through life preventing disasters, habituates himself to the expectation of accidents.

Readiness begets self-possession—presence of mind — coolness — firmness— promptness— acuteness of perception—courage—heroism—genius—inspires confidence in the patient and bystanders.

"Heroism is the self-devotion of genius manifesting itself in action."

The medical man does not teach much of the nervous system, but enough for the purpose, and sufficient for the First Aid to recognise the necessity of allaying, as best he can, the nervous apprehensions, thus calming the excitement of the patient—take for instance a would-be suicide by cutting his throat—most frequently he does not cut it to the death—and yet he thinks he has, and he expects death momentarily, as he feels the hot blood flow out; convince him he has not, and you effect much towards his safety. In every case of injury the proper and judicious use of the "unruly member" is invaluable whilst working with the hands.

## *MAXIMS AND ITEMS.*

Never attempt to restore circulation until you have restored breathing, it would be like winding up your watch, forcibly, backwards.

In restoring breathing, you imitate nature, so you must remember the function of breathing.

In restoring circulation, you must imitate, follow, and assist nature, so you must remember the functions of the circulatory organs of the body.

Never let a person restored from suffocation walk away, or move about, keep him quietly lying down.

Never put pillow under head alone, of insensible person, always under head and shoulders.

Never move a man ; (of course not set him on his legs) until you are sure there are no broken bones, and not then until you have made the broken bone secure from moving.

Remember how you have been taught to examine

for, "What's the matter," and find that out before you set him on his legs.

Always see that the neck clothing is loosened to permit free breathing. Position of injured body is most important.

Never tie knots over the flesh, but over the splints.

Always put something soft between wood splint and flesh.

Straw covers of wine bottles make capital splints.

When a person is insensible, only breathing and circulation are going on, so give nothing to drink.

Never give alcohol in injuries.

Never put wool, nor anything fibrous, next the flesh in a burn or scald.

Soothe the patient with kind words whilst you are working with your hands.

In case of alarm of fire in an audience, seize the person on each side of you and make them sit still.

Kick orange peel off the pavement. Cut clothes off by ripping up the seams.

Always elevate the bleeding limb, also in sprains.

Always keep the skin clean.

Give plenty of fresh air in all cases of fits, or apparent suffocation.

Bad water may produce worms, diarrhœa, dysentery, fevers, &c. Boil suspected water.

For gunshot wounds in chest or belly, place patient on wounded side with knees drawn up.

The perfection of any instrument or mechanism is its complete adaptability to the work it is intended to perform; keep your own body thus adapted.

A patient should not lose another drop of blood after the First Aid can get his hands to him.

1. Finger on, or even in, wound.
2. Compress artery.
3. Improvise tourniquet.

Not a moment is to be lost in making use of your brains, tongue, hands, feet, and legs, judiciously and effectually.

The brain takes $\frac{1}{6}$ to $\frac{1}{5}$ of the whole circulating blood.

If you desire to pursue this teaching you may make each organ a separate course of study.

Circulation maintained by the heart, is regulated locally by muscular action of arteries.

What kills, often cures—What cures, often kills.

The rate at which blood travels through the body in making the entire round, is thirty seconds; through the large arteries, one foot each second. In the capillaries, one inch a minute. Significant of the value of "FIRST AID"!!

Proficient First Aid does not admit of a second thought. You must be READY.

Cold always assists to arrest bleeding.

People act more from habit, than from reflection.

A body breathes about 15 times (respirations) a minute.

About 350 cubic feet of air pass through the lungs each day. The skin throws off about 400 grains of carbonic acid daily. Nerve current travels at the rate of about 300 feet each second.

Capillaries are about $\frac{1}{2000}$ of an inch broad.

Serious reduction in the *quantity* of blood, immediately produces deficient mental activity—depravation of *quality*, a perversion of that activity.

Nature is her own Physician—*(See Appendix, Note E.)*

The "constitution" of persons' bodies differs or varies very much. The constitution of their minds varies quite as much.

"Men are dull at studying themselves. They act more from habit than reflection."—Dr. Paley.

Disobey nature and she will punish you; we cannot cheat her.

A great catastrophe often grows out of a small misadventure.

Knowledge, dwells in heads replete with thoughts of other men. Wisdom, in minds attentive to their own. Our knowledge is our power, and God is our strength.—Southey.

The Brain (the Cerebrum) may be considered as the Central Telegraph Station of the Body; the seat of Intellect, Will, Emotions, Ideas; not of Feelings nor Sensation. Its Folds, or Convolutions, will cover 670 square inches. The *number* of these folds, indicate the power of intellect. Lower animals have no folds. In higher animals folds appear.

The active power is supposed to lie in the layer of pinkish-grey substance of the brain, which is about one-eighth of an inch thick, and this is the part that is affected by *Intoxication.*

One marvel in the Human Body is its wonderful adaptability, insusceptible of improvement ; but, to be kept in order, it demands constant use. Misuse or abuse, involves disease and deformity. Disuse, involves death ; and this is equally true as regards the Soul and Mind. A melancholy, but, let us hope, a lessening instance of the effect of misuse, is the "physical atrocity." (See Figures) L & M.

The Heart is a great Reservoir. It knocks at the door of every organ 70 or 80 times a minute, and calls for it to receive its Supply, and give up its Refuse.

Between the heart and the head there is the closest relation.

## *KEY TO THE QUESTIONS.*

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### No. 1.

**For lifting a body**, see that neck clothing is loose, and refer to Stretcher Drill. 4 hand-seat—Two persons face each other, each places his own left hand upon his own right wrist, and grasps his vis-à-vis (the other person's), left wrist with his own right hand. Let these two persons be numbered 1 and 2.

To convert the 4 hand-seat into a 3 hand-seat, No. 2 takes his right hand off No 1 left arm, and places it upon No. 1 left shoulder—at the same time he grasps, with his left hand, the left wrist of No. 1.

**Arm Stretcher.**—Nos. 1 and 2 face each other, No. 1 places his left arm on the right shoulder of No. 2, No 2 places his right arm on the left shoulder of No. 1. Both interlace fingers of hands in front.

**Assisting.** Nos. 1 and 2 stand side by side, the patient places his arm round helper's neck, his

hand hanging down in front, helper grasps that hand, passes his other arm round patient's waist, gets his shoulder well into patient's armpit, and his hip to patient's hip, then pulling down patient's hand, levers him up with his hip, so as to take part of the weight of patient's body off patient's legs.

## No. 2.

Bind up the **broken bone** *as it is*, make it quite secure, to prevent its moving. Simply broken.—Ends of bone protruding through the flesh and skin. Bone smashed into several pieces.

## No. 3.

Used principally to tie on something, or to keep a dressing, or pad, or anything, in its place. Hold it by its point; fold it, by bringing the point to the base, fold again, and you get a broad bandage, fold once more for a narrow bandage. The point, or apex, for the skull, goes on the back of the head; for the chest and back, upon the shoulder; for the shoulder, high up upon the shoulder; for the hip, above the hip (lower rib); for a large arm-sling, at the elbow.

## No. 4.

Bind up a **broken collar bone** by placing a good sized pad in the armpit, bind the arm to the body, put on large arm-sling. **For upper arm**, put on splints, padding them with something soft, and a narrow arm-sling. **For lower arm** the same splints, taking care that the patient's hand is THUMB upwards, a *large* arm-sling.

**For ribs,** a large and broad bandage, round and round, not too tight, yet tight enough.

**For jaw**, either an Esmarch with a slit in it to fit, and allow the lower jaw to pass partly through it, or a folded bandage to accomplish the same, and tie on the top of the head, so as not to slip.

**For a Broken Spine.**—Two long splints on each side of the spine, reaching from head to feet, carefully inserted under the body, body bound round and round, to make spine immovable.

**Pelvis** the same, taking care not to bandage over Pelvis.

**Thigh.**—First, with a splint on each side, making the broken bone secure by itself. Next put a long

splint reaching from armpit to feet, bandage under armpits, over chest, round hips, not stomach, over both knees, over both legs, half-way between knees and feet, over both ankles—tie feet together over toes, with figure of 8 bandage ; all knots must be reef knots, and over wood, never over flesh.

**Knee-cap.**—A long splint at the back of the leg, from thigh to foot, an umbrella is good, tie both legs well together, and keep them raised.

**Leg.**—A splint on each side, *tie* legs together.

**Fingers.**—Small light splints, hand in sling.

## No. 5.

The points in the body where finger pressure is possible, are, anywhere on the skull, opposite the orifice of the ear, behind the ear, at the angle of the jaw, half way down the neck, or lower, in the " Bird's Nest," under the muscle of the upper arm ; at the wrists ; on the edge of the pelvis bone, in the upper third of the thigh, at the ankle, inside the elbow, and behind the knee.

## No. 6.

**For Head** (*i.e.* Skull).—Pressure on wound; cheeks and lips; thumb inside, finger outside, and squeeze. Nose; arm or arms extended above head, raise head, cold to the root of nose and back of neck; if necessary, medical man may plug.

**For Upper Arm.**—See No. 5. Finger pressure either under the muscle of the upper arm or in the "Bird's Nest"; for lower arm and legs, bandage lower to upper limb, putting a small pad inside elbow or knee joint. Sometimes no pad is necessary for the arm, but it is for the knee joint.

**For Palm of the Hand.**—Stop at wrist, or tie lower arm to upper.

**For a Varicose Vein.**—A bandage below, upon, and above the bleeding. Position of injured limb should be distinctly raised.

1st. Finger on wound, even in wound, if necessary.

2nd. The thumb of the other hand on the blood-vessel supplying the bleeding, if possible.

3rd. Improvise tourniquet, taking care that this is put on, where the artery can be compressed.

## No. 7.

**For Internal Bleeding.**—Ice or cold water applied upon the surface of the body over the bleeding part. Ice to suck.

**From the Lungs** the blood is bright in colour, frothy, and coughed up.

**From the Stomach,** mixed and dirty, and vomited up.

## No. 8.

**The Blood Current in Arteries is from** the heart to head and feet, from the veins it is **to** the heart from head and feet. Pressure for arterial bleeding must be applied between the wound and the heart. Pressure for venous bleeding on the opposite side.

**Arterial Bleeding** is distinguished by being bright red in colour, issuing in jerks, corresponding to the pulsation, if no clothes impede it.

Venous is dark purple, or almost chocolate in colour, and wells or flows out of the wound.

Arterial is the most dangerous, yet a large varicose vein is very dangerous.

## No. 9.

For resuscitating the apparently drowned, see Note on No. 6 Lecture, and Appendix B. Also for artificial respiration, to restore the apparently suffocated.

## No. 10.

First Aid in all **Fits** and other injuries. See that there is nothing tight about the neck to impede breathing.

**Apoplexy, Concussion and Compression.**—Head and shoulders raised, apply cold to the head, keep quiet, if possible, in a dark room.

Principal sign in **Apoplexy** is the stertorous breathing, and Paralysis, the same in Compression, without Paralysis.

Signs of **Concussion** are, the insensibility is only partial, the patient may be able to answer a question,

then relapses; the breathing is very quiet, like a child's, a contrast to Stertor. The patient will probably be sick.

In **Epilepsy** there is the Epileptic cry when the Patient falls; the convulsions, the probable biting of tongue. In **Faints**, a deadly pallor, a cold perspiration, insensibility—lay the Patient flat on his back, head low. If in a crowded place, at the commencement of the faint, bending the head between the knees, may revive him. First Aid in **Epileptic Fits** is to prevent him biting his tongue or injuring himself—use only gentle restraint.

**Dislocations** are known by the limb being out of joint. No First Aid can be rendered in these cases beyond keeping the limb quiet, and the Patient as easy as possible, until a medical man can be got.

## No. 11.

**"What's the Matter?"**—Sprained ankle-joint wrenched, blood gets into it.

**Bites.**—Poison enters the blood from the bite.

**Burns and Scalds.**—The skin is destroyed, air gets in.

**Choking.**—Mostly caused by some substance closing the wind-pipe, and preventing respiration.

**Rupture** of the bowels by overstraining, the intestine protrudes out of its place, causing a swelling.

First Aid for the above is as follows :—

**Sprained Ankle.**—A bandage as tight as possible round the ankle, cold water or hot, alternately. Limb raised. You may mix spirits with the water.

**Bites.**—Instantaneously, improvised tourniquet above and below the wound, to confine the poison to the part. Wash and suck until medical help arrives.

**Burns and Scalds.**—To keep out the air cover with rags well soaked in olive oil. Smear plenty of oil over parts. Put nothing fibrous next wound ; lose no time.

**Choking.**—The impeding substance is usually within reach of your finger ; use it as you have been taught, and remove obstruction. You may use

also the other methods. Artificial Respiration may be resorted to, if necessary.

**Rupture.**—A bandage to restore and keep the bowel in its place, patient to be kept in a recumbent position, if necessary. Knees may be drawn up also, until medical help arrives.

## No. 12.

First Aid for **Cut-Throat.**—Convince Patient that he is not in imminent danger, if he keep still. Prevent cold air getting into lungs. Gently close wound. Apply warm sponge.

**Hanging.**—When taken down, proceed as for Suffocation.

**Sunstroke.**—Cold to the head. Strip to the waist. Trickle a continuous stream of cold water upon and from nape of neck down spine. This has been found the most efficacious in the Soudan.

**Bruises.**—If slight, cold fomentations ; if severe, warm.

**Person in Flames.**—Throw yourself, or throw the person, flat on the floor at once, and then ex-

tinguish with anything at hand, by rolling him over and over.

**Shock.**—Restore circulation. Apply heat, the body is intensely cold.

**Poisons.**—In all cases give an Emetic, except where corrosives have been taken, and in that case, give Oil, except in Phosphorous, then give milk. For Narcotics, take care not to let the Patient go to sleep. The reason Emetics are given is to get it off the stomach. The FIRST AID cannot be taught Antidotes. The reason an Emetic is not given in the case of corrosives, is, that it would be cruel to burn him twice over.

## No. 13.

To improvise, is to press into your service whatever may be at hand, to supply the place of prescribed material. To be able to "*bore with a saw, and saw with a gimlet*" ! !

# St. John Ambulance Association.

*LIVERPOOL CENTRE.*

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## Rules to be observed in the Formation of Classes.

Mixed Classes of Males and Females are not permitted.

The best number for a class is not less than 20, nor more than 30.

These numbers being got together, they should elect one to act as the Class Secretary, who will conduct the business with the Hon. Secretary of the Liverpool Centre.

1.—He will collect the amount of 10/6 from each Member of the Class for the entire course of Lectures, and hand the total amount to the Treasurer of the Centre, together with a complete list of Christian and Surnames and Addresses of the Members. See Note.

2.—This payment is not to be applied to any

hiring of the room or incidental expenses of the Class.

3.—The Secretary of the Class will provide a convenient place where the Lectures can be given.

4.—The Hon. Secretary will then arrange for an Inauguration Meeting to be held.

5.—Any member absent from one of the Lectures will subscribe 2/6 by way of fine for each absence. See note.

6.—Each Lecture lasts about one hour and a-half, *the last half hour being devoted to practical work.*

7.—The Hon. Secretary of the Centre will provide the Medical Lecturer, and the necessary material for the Class, such as Stretcher, Diagrams, Splints and Bandages.

8.—When the Class is duly instructed, its Secretary will report to the Hon. Secretary of the Centre, who will then arrange for an Examiner being sent from the Head Office in London, at a time and place convenient to the Class.

9.—Members who pass the Examination success-

fully will receive a Certificate of Proficiency from London.

10.—Certificated Pupils are required to present themselves for re-examination within Twelve Months from the date of their Certificates; those who have twice undergone re-examination are exempt from any further ones, and are eligible to receive a Medallion in gold, silver, or bronze, in accordance with the Association's Rules, to be used as a Certificate of Competency to render First Aid to the Injured but *never as a decoration.*

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NOTE.—Rules 1 and 5 will be relaxed, in the matter of Subscription and Fine, by the Hon. Secretary of the Centre in cases where he considers it expedient.

Certificated Pupils can obtain small Pocket Certificates, bound in morocco, price One Shilling each.

Each Pupil pays One Shilling for re-examination.

For any further particulars apply to

Lieut.-Col. C. B. PARIS,
*Deputy Chairman and Hon. Secretary.*

# *APPENDIX.*

## *NOTE A.*

Surgeon Major Hutton in his address at Bishop Auckland last February, gives the annual number of mining accidents as "100,000. In the ten years ending with 1884, out of 11,165 deaths; whilst 2,562 were due to explosions, 8,603 resulted from falls of roof and sides, &c., and he goes on to explain that out of 224,000 members of the miners' unions, 44,579 were injured and received relief, and that the loss of wages alone, entailed by accidents in the mining districts, amounted in one year to something like £300,000." But, if to the mining districts, all other centres of labour be added, what would be the sum then? If the total sum paid for injuries and accidents by Assurance and other Societies were ascertainable, it would make the necessity for this knowledge of First Aid, by every man, woman, and child, stand out in bolder relief than it does even now, and

heighten our astonishment that this good work is not heartily embraced and *supported* financially, so as to spread it, by those Societies who desire to lessen the large sums they pay for accidental injuries : for, in the case of a broken leg, as well as in other accidents, the patient recovers and gets to work again in one-third of the time if First Aid be rendered. I received a letter some time ago from a foreman in a large factory, with a list of names of workmen, and injuries they received from accidents during one year, in which he had been able to render First Aid, and the consequent amount of money saved to their club, through the men being able to continue earning their wages. I was surprised at the amount of money thus saved.

The number of persons, male and female, passed through the First Aid Classes in this centre since its formation, is about 4,000. This number includes some 500 of the City Police Force, who have received Certificates, 200 of whom have passed two annual Re-examinations, thus obtaining the Medallion of the Association. 800 men and women have passed

through the classes of this centre since last June; only four out of this number failed to satisfy the examiner.

Since the practical part was made of primary importance, it is seldom that anyone fails to pass through the examination successfully.

As to the amount of good done, the *fruit* of all this labour, it is somewhat difficult to obtain correct statistics, as cases where First Aid has been rendered by individuals, are not reported, but with respect to the Police, no less than sixty-two cases, out of the total Street Accidents for last year, were treated so skilfully by the several Constables rendering "First Aid" in each case, that these were "specially recommended" by the Hospital Surgeons for their skill, and accordingly rewarded. As to the rest of the cases, we have no special account beyond the admitted fact that, all persons suffering accident or injury are now better cared for by the Police. Now contrast the present state of these matters with what occurred a few years ago! A Constable, named Sutherland, was stabbed in the thigh,

in the street, and helplessly bled to death in a few minutes, and, that cost the Ratepayers upwards of £400!! To-day, the Constable has knowledge enough to stop the bleeding himself, instantaneously, or to direct a bystander to do so, and thus save his own life and the Ratepayers' money.

Two constables have recently received the distinction of the "Chevron," for treating a case of an unfortunate man, who had both legs taken off in a railway accident and was bleeding to death. There was a point of considerable interest in this case, clearly proving that these men understood their work, and did it intelligently, and one also instructive to others. The railway porter, assisted by the passenger who found the patient, had endeavoured to stop the bleeding by tying upon one stump a pocket handkerchief, and upon the other a cord. These, put on properly, in the right place, would have served as tourniquets, but they were not, and failed to compress the main arteries. As soon as the police got to the man, they improvised tourniquets with rope and their truncheons,

placing the latter upon the arteries, and thus stopped the bleeding. The constables were John Woods, No. 68, taught in 1883, and George Disay, taught in 1882—both men are Medallionists of the Association. The Head Constable, considering this "a very exceptional and creditable case," had it strictly inquired into, and the Doctor's report was so satisfactory that both men were awarded the "Chevron" by the Watch Committee, upon his recommendation.

If further proof were wanted: these tourniquets were not disturbed by the surgeons, and the constables did not get back their truncheons until four days afterwards. If the railway porter or the passenger had known "First Aid," probably this man's life would have been saved; but he lost so much blood, before the Police got to him, that he succumbed four days afterwards in the Hospital.

The "Chevron" is a new order for the police, to be granted only for exceptionally meritorious services in the discharge of their duties.

## *NOTE B.*

If the jaws are clenched, separate them : place a small piece of wood or a cork between the teeth.

Press on the back when the body is on its face.

Your assistant can dash cold water on chest and face, excite nostrils with smelling salts, tickle the throat with a feather, give two or three smarting slaps on chest and stomach, flap the chest with a wet towel, but never suspend the artificial respiration. Carefully aid the first short gasps until deepened into full breaths.

Dr. Labordette has shewn that the clenched jaws and contraction of the fingers, sometimes taken as evidence of death, are really signs of remaining vitality with apparently drowned persons as well as with animals. His experiments demonstrate that these are only the signs of the first stage of suffocation by drowning. Let these signs encourage you, as well as the common-sense theory of (First) Aidology respecting the last action of swallowing; the

hermetically closed wind-pipe, and the lung air capacity, &c.

Dr. Labordette restored persons whose jaws were so firmly clenched that, to aid respiration, their teeth had to be forced apart with iron instruments.

In order to inspire hope and perseverance, the following is propounded in the practical part of restoring the apparently drowned; if wrong—it is so in the right direction, as no harm can be done to a dead body. Generally, before insensibility, the last act of the drowning body is to swallow, therefore the wind-pipe is closed—hermetically sealed—so that water cannot thenceforward get into the lungs. Take the lung air capacity at three million cells, may they not then contain a reserve of air sufficient to sustain a spark of life, rendering resuscitation possible after a much longer immersion than is generally supposed, and this, notwithstanding every appearance of death?

Is it not a fact that many are carried away as dead from drowning, who could have been restored? Leaving one of our classes some months ago, a

gentleman on the tram told me he was very glad to hear this teaching, as that summer, a young man's body, after twenty minutes' immersion, had been taken to the dead house, laid out and left there ; the next morning it was found turned over on its side. Like cases could be multiplied. Formerly, it was not thought possible to resuscitate a body after a period of immersion much shorter than it now is. Not long ago a man was taken away as dead, but his watch was going—odd that the body should die before the watch !!

Dr. Graham, in his chapter on suspended animation, states :—" Formerly, it was supposed that in drowning, suffocation was produced by a rush of water into the cavity of the lungs, but it is now well ascertained that in many cases of death from submersion, not a drop of water enters into the lungs ; that where it does enter, the quantity is, for the most part, very small ;" and he further states :— Suffocation in drowning is caused by a "rigid spasm of the muscles of the wind-pipe." May not the living principle remain attached to the living frame

longer than is generally supposed in suffocations from all causes? Your FIRST AID should persevere in every effort at least!

*NOTE C.*

As to the "ready man," take two persons, Jones and Smith, both proficient FIRST AIDS; they see an accident in the street, Jones has not trained himself mentally, therefore feels himself not quite certain as to what he should do, this begets nervousness; he is lost, and slopes down a side street, or mixes with the crowd. Smith is ready, has all at his finger ends; steps up and renders Aid. This is further exemplified by a very good article which appeared a short time ago in the *Daily Telegraph*, which it will not be amiss to reproduce here—it is worth it! The writer of it, one would think, must have been a "FIRST AID," as the whole article teems with the principle inculcated in the Mental part of this Practical Work. Here it is then, let the reader judge for himself:—

"A PRACTICAL lesson of great importance is suggested by the sad story of Thursday's colliery explosion near Man-

chester. Nearly three hundred and fifty men and boys were underground working in a coal-mine On a sudden the black seams are all lit up by a flash of light. The next instant there is pitch-darkness, and every lamp is out. A rumble as of passing thunder fills the pit, the ground quivers, a mighty rush of wind blows men and timbers and blocks of coal before it like straws. What had happened? An explosion of fire-damp. Out of the three hundred and forty-nine men and boys who went down the shaft in the morning, one-half are soon dead and dying. And the other half? They are panic-stricken, rushing to inevitable death in the hope of escape, to certain suffocation in the hope of safety. Many are inarticulate with terror. Some are delirious. But there is one man among the many who keeps his head. The crowd rushes by him—shouting, prayiug, moaning; but he stands in their way, cool and commanding. He turns the terrified men from the deadly course they have taken into that in which there is safety. They overwhelm him with blessings, and rush on as he has bidden them. By virtue of his presence of mind he, this simple miner in his scorched and soot-black clothes, is a Providence to the rest. His unshaken nerve is more, at that awful moment, than all the

symbols of sovereignty put together—crown and sceptre, robes and throne. His fellows instantly acknowledge the imperial attribute of a superior courage. They obey him—and their lives are saved. Now here, surely, there is a practical lesson which we may all of us do well to take to heart. This man, WORRALL, who, in that dire instant of catastrophe—lightning and thunder, earthquake, hurricane, and suffocating pestilence all combined—never lost his presence of mind, who was able to comprehend accurately and graphically such a fearsome scene, who told his comrades which way to run, saw them all off before he went himself, and was the last to leave the scene of death, was, perhaps, not more courageous than the man who fled past him deliriously repeating the alphabet, or those others vociferating incoherent appeals for impossible help. Courage belongs to every Englishman by birthright. These very men who succumbed to the sudden horror of their peril—and who will deny it was sufficient to test the hardiest nerve?—would any and all of them have volunteered for the dangerous task of rescuing others in the same position. Had they been outside the pit instead of inside, they would have come cooly and heroically down the shaft, and searched, at the risk of their lives, for the dying and the dead.

"Whence, then, arose the difference between the conduct of the two hundred and of the one? Simply in this—that WORRALL was an underlooker, a superintendent. His duty was to direct and take the lead in all emergencies in his own part of the mine. Over and over again, no doubt, he had rehearsed to himself the precautions which the regulations insisted upon, and the steps to be adopted should accident occur. These were uppermost in his mind. They came, as it were, spontaneously to his tongue. The flash that dazed all the others with sudden horror was to him merely a cue that he was waiting for. His duty was at once clear before him. The rest of his companions—and the miner is notoriously reckless—had never probably discussed or thought over the proper thing to do as soon as they saw a flash of flame fill the mine. They had never prepared themselves for the dreadful rumbling that was to follow, and the utter darkness, the quaking of the solid earth, and the rush of a hurricane through the workings. These phenomena took them all by surprise. In an instant, before they could collect their thoughts, they became panic-stricken. Reason was off its balance. They rushed ahead, to the most dangerous spot, probably, in the whole pit, just where the choke-damp was

already strangling scores at the main pit-eye, and with the same precipitate unreasoning terror as prairie herds which, stampeded before a fire, pour headlong over the precipice. Had it not been for the one man who remained cool-headed and who squarely met catastrophe in full career, facing the terror with firm eyes—for him who, with his clear accents of plain direction, cut sharp across, as with a sword, the path of onrushing calamity —the loss of life would have been even more appalling than it was. How came he to possess this magical power? Simply because, in the first place, he is a brave man; in the next, he said over and over again to himself, times out of number, what it was that he would have to do in such and such a crisis. 'If so and so happens I am to do this,' he had, in duty bound, repeated to himself; so that when 'it' did happen he was ready on the instant to act, and act splendidly. Courage, therefore, is not sufficient in itself. As ROCHEFOUCAULD says, much luck goes to the making of a hero. What thousands of brave men have never had the chance of the Victoria Cross! On the other hand, how many have missed it! The chance long waited for comes, and, unfortunately, he was not ready. It passes in a flash. Another grasps it, and all the army exclaims,

'What luck!' War, however, is not the only sphere for heroism. Travel, adventure, and sport offer constant chances to the man who is prepared. Take the seaman's life, for instance. How very common it is to find that the man who has saved one life from drowning has saved half a dozen, and even more! Why is this? Merely because he was prepared to do it. He had always been saying to himself, 'A man overboard, overboard I go'; and the result was that, out of a shipload of brave men, he is conspicuously the hero.

"After all, it is only a minority even of our adventurous race that seeks a life abroad. Yet those who remain at home, whose life is in city streets or country fields, should perpetually be in training, as it were, for an emergency. They must cultivate their courage. Opportunities will perpetually offer for saving, if not life itself, at any rate limbs, or even property. For every accident, how many spectators are there? Do they help? No. The accident was too sudden. But every now and again the same accident, quite as suddenly, occurs, and the prepared man is among the spectators. He acts, and the catastrophe is averted. The crowd cheers him; he takes off his hat to the crowd and is gone. That man goes through life preventing

disasters, big and little. He is calling at a house. A child lifts up a valuable vase. He is at once on the alert. The vase slips; he catches it. "Thank you," says the hostess; "we prize that vase very much." By and by he is in the street. A man is on a ladder cleaning a gas-lamp. Two boys are romping. Our hero sees what may happen, and is ready. The boys tumble against the ladder, and but for the strong hand that suddenly grasps it the lamplighter would be going to the hospital on a shutter. This is no fancy sketch. There are men who habituate themselves to the expectation of accident, and who are ready to act. Scores of senseless fools who jump out of trains in motion owe the wholeness of their limbs to the cool man on the platform who is watching them, and is ready to break their awkward leap. Many officers, both in the merchant-service and the Navy, occupy their watches in imagining dangers to be met. Many in the Army train themselves in the same way. Civilians, also, may be met in abundance, who are prepared for the perils of our London ways. Life or limb is often to be saved by the fare in a hansom cab having the presence of mind with his umbrella or walking-stick to keep the reckless pedestrian off the wheel. On the river, if every man would

say over to himself when he gets into the boat exactly what he would do if it capsized, there would be fewer deaths from drowning. When taking his seat in a theatre every one should think for a moment of the right course of action if there should be a sudden alarm of fire. 'I will take hold tight of the person on each side of me, and prevent their rushing.' Imagine if every man in the audience did this ! And what more simple ? It is only to be prepared. How many accidents at crossings might not be avoided by the coolness of a passer-by ! As it is, vehicles and horses claim a victim per diem in London all through the year. If this sounds common-place, it is only because the importance of heroism—that is, preparedness for action—in ordinary circumstances of life is not appreciated. A great catastrophe often grows out of a small misadventure. The man who would have smothered the first spark did not happen to be by, and the conflagration soon gets beyond control. The truth is, however, that such men should not be exceptional—they ought to be the rule. We are a courageous and cool-headed race, and we should cultivate these common gifts. It may happen any day that we may be called upon to act promptly and bravely in the interests of a large number, and it lies in the power

of every citizen to keep himself always prepared for an emergency. By clearly laying it down to himself beforehand what it is that he should do, the doing of it at the right time will become almost a matter of course to a brave man, and, as in the case of Worrall, his presence of mind may save the lives of a hundred human beings."

## *NOTE D.*

All acquirement of knowledge depends, in the first place, on our *recording* power; in the second, on our power of *finding* what has been stored away (so to speak) in our "Record Office."

Now the recording power mainly depends upon the degree of attention we give to the idea to be remembered.

Imagination, or the image-making power, consists in that reproduction of the mental "idea" or representation of an object formerly perceived through the senses.

If we have *ever* known a thing, the question whether we can be said to know it at any particular time, is simply whether we can *readily reproduce* it from the storehouse of our memory.

Respecting the influence of the mind over the body, your First Aid man should know something of this subject in order to appreciate the importance of his attending to the state of mind the patient is in; he has here a power and resource which he must not disregard nor lose sight of, a potent element in First Aid, and it may therefore be useful to give a few extracts from Dr. Carpenter to illustrate it:—

"There can be no doubt that real disease often supervenes upon *fancied* ailment. In many individuals whose sympathies are strong, a pain in any part of the body may be produced by witnessing in another, or even by hearing described, the sufferings occasioned by disease or injury of that part. The self-tormenting hypocondriac will imagine himself the victim of any malady he may '*fancy*.' This persistent direction of the attention has a much greater potency when combined with the *expectation* of a particular result, and thus it happens that the spells of pretenders to occult powers, in all ages and nations, often produce the predicted maladies in the

subjects who are credulous enough to believe in their efficacy."

The same mental state may operate beneficially in checking a morbid notion and restoring the healthy state.

That the *confident expectation of a cure* is the most potent means of bringing it about, doing that which no medical treatment can accomplish, may be affirmed as the generalized result of experiences of the most varied kind, extending through a long series of ages.

A highly intelligent lady known to Dr. Tuke, related to him that one day she was walking past a public institution, and observed a child in whom she was particularly interested coming out through an iron gate. She saw that he let go the gate after opening it, and that it seemed likely to close upon him, and concluded that it would do so with such force as to crush his ankle; however, this did not happen.

It was impossible, she says, by word or act, to be quick enough to meet the supposed emergency,

and, in fact, I found I could not move, for such intense pain came on in the ankle, corresponding to the one which I thought the boy would have injured, that I could only put my hand on it to lessen the extreme painfulness. I am sure I did not move so as to sprain or strain it. The walk home, a distance of about a quarter of a mile, was very laborious, and in taking off my stocking I found a circle round the ankle as if it had been painted with red currant juice, with a large spot of the same on the outer part. By morning the whole foot was inflamed, and I was a prisoner to my bed many days.

A lady, watching her little child at play, saw a heavy window-sash fall on its hand, cutting off three of the fingers. Overcome by fright and distress, she was unable to render any assistance. A surgeon was speedily obtained, who, having dressed the wounds, turned to the mother, whom he found seated, moaning and complaining of pain in her hand. Three fingers, corresponding to those injured in the child, were swollen and inflamed, although they ailed nothing prior to the accident. In four-and-

twenty hours, incisions were made into them, pus was evacuated ; sloughs were afterwards discharged, and the wounds ultimately healed.

## *NOTE E.*

### Nature Her Own Physician.

If a particle of dust lodges between the eye and the eyelid, an increased flow occurs from the lachrymal gland to wash it to the inner corner of the eye, whence it is easily removed.

Introduction of food into the mouth produces an immediate flow of saliva for its mastication, corresponding with a simultaneous pouring of gastric juice into the stomach for its digestion.

Making a hungry man's mouth water by the sight, smell, or even thought of food, is due to the same action of Nature.

The instinctive feeling of thirst . . . . like hunger, I apprehend, must be referred to a particular condition of the nerves, wisely ordained to express the wants of the system.—Dr. Paris on Diet.

Our inability upon all occasions to appreciate the efforts of nature in the cure of disease, must always render our notions, with respect to the powers of art, liable to numerous errors and multiplied deceptions.—Dr. Paris' Pharmacologia.

The sympathetic powder of Sir Kenelin Digby, Knight of Montpellier, which, whenever a wound had been inflicted, was applied to the weapon that had inflicted it, which with ointment was dressed three times a day, led to a discovery of Nature's cure. The wound itself was in the meantime to be brought together, and carefully bound up with clean linen rags, but, *above all, to be let alone* for seven days, it was then generally found to be perfectly united. The cure was attributed to the mysterious agency of the powder applied to the *weapon,* whereas it depended upon the total exclusion of air from the wound and the sanative operations of Nature without interference.

It has often been said that, the physician's art consists in entertaining the patient until Nature effects the cure.

Dr. Paris in his Pharmacologia gives the following anecdote related by the great physician Sydenham, who, having long attended a gentleman of fortune, with little or no advantage, frankly avowed his inability to render him any further service, adding that there was a physician of the name of Robinson, at Inverness, who had distinguished himself by the performance of many remarkable cures of the same complaint, and expressing a conviction that, if he applied to him he would come back cured. The gentleman received from Sydenham a statement of his case with the necessary letter of introduction, and proceeded without delay. On arrival at Inverness he found to his utter dismay and disappointment that there was no physician of that name, nor ever had been in the memory of any person there. The gentleman returned vowing eternal hostility to the peace of Sydenham ; and on his arrival at home, instantly expressed his indignation at having been sent on a journey of so many hundred miles for no purpose. "Well," replied Sydenham, "are you better in health?" "Yes, I am now quite well, but

no thanks to you." "No," says Sydenham, "but you may thank Dr. Robinson for curing you. I wished to send you a journey with some object of interest in view; I knew it would be of service to you; in going you had Dr. Robinson and his wonderful cures in contemplation, and in returning you were equally engaged in thinking of scolding me."

The efforts Nature puts forward to expel any foreign substance in the body; the simple act of coughing, the healing process in fractures, eruptions and such like, all go to prove—and they could be multiplied indefinitely—were proof wanted, that Nature is her own Physician, and very often is best let alone, and should be always only aided.

*"Mental Physiology" by W. B. CARPENTER, C.B., M.D., F.L.S., &c.*

*"Pharmœologia" by J. A. PARIS, M.D., F.R.S., F.L.S., (Late President of the Royal College of Physicians of London, &c., &c.)*

*"Paris on Diet."*

## *NOTE F.*

The Practical part of Paralysis, Nerves, and Muscles.

To make this somewhat formidable word Paralysis, clear; as well as to give an idea of a Nerve; suggest, as an example of both, a submarine cable, or a telegraph wire, or the bell wire in a house, or give all three.—You can illustrate them, by explaining and completing the comparison, and thus impart sufficient knowledge of each, for First-Aid purposes. A section of a submarine cable, resembles a section of a nerve—is it a copy? The wire requires insulation, so does the nerve—the wire conveys the message, so does the nerve; if an injury or fault occurs in any part of the wire—the message goes so far, no further—so with the nerve. If the bell wire be broken, a foot or two below the handle, you may pull the handle, but the bell won't ring—the bell is paralysed, will not function—the wire is paralysed from the point of fracture or injury. The Medical

Lecturer will already have explained enough (but no more) of the nerves, to enable the Lay-Helpers to make this perfectly plain to the class, so that they understand how, in the absence of nerve power, the muscles cannot be made to move, any more than the bell be made to ring by pulling the bell handle, or the message be made to pass along the cable, if the wires are broken or defective.

To explain a muscle, the Lay-Helper, simply has in his hands, an elastic band—contracts and expands it, and explains how that is a muscle.

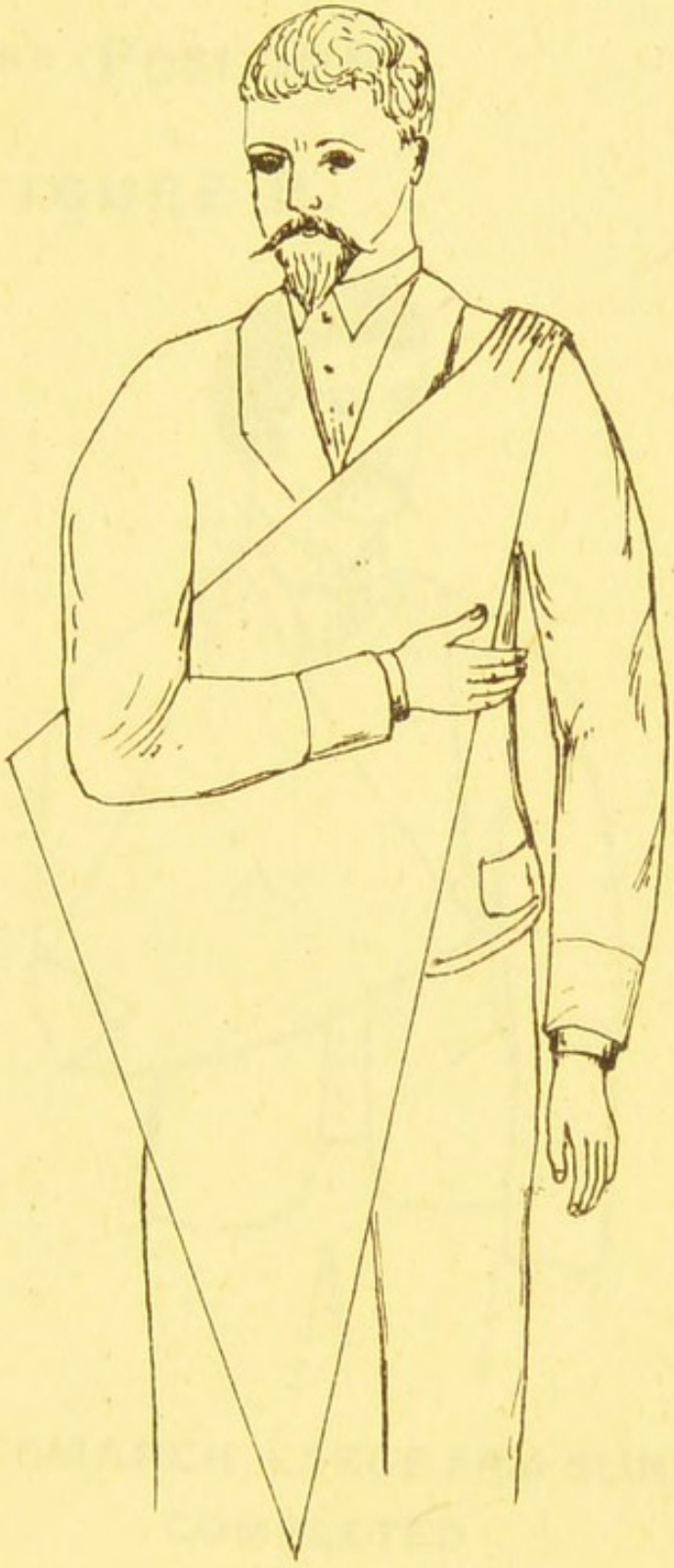
# INDEX.

INDEX.



LIVERPOOL: PRINTED BY EDWARD HOWELL CHURCH STREET

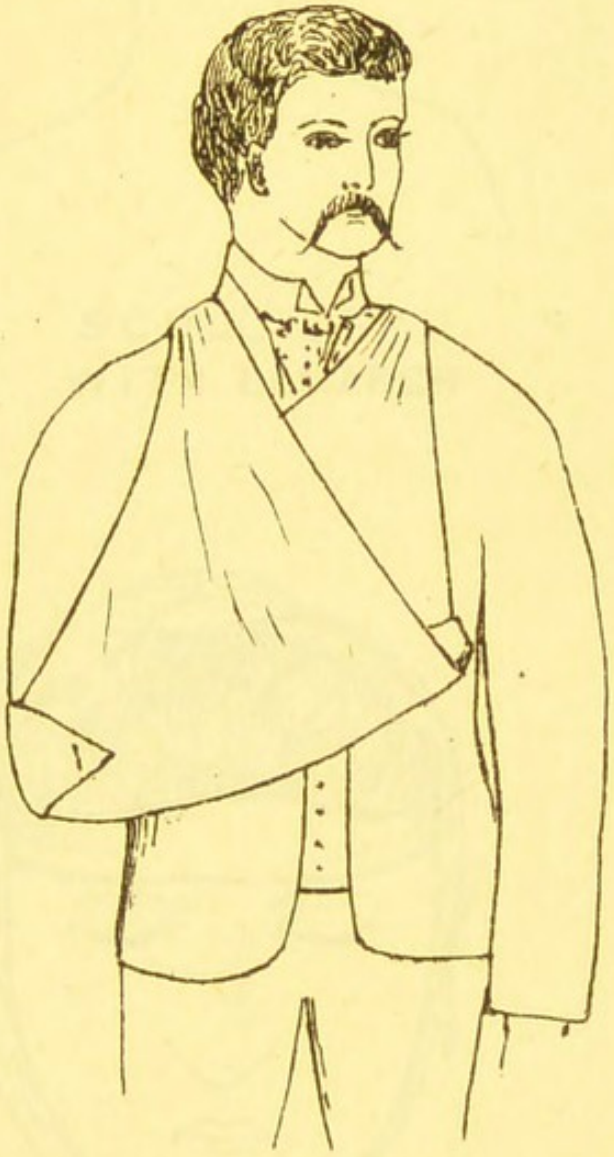
FIGURE A.



FIRST POSITION OF ESMARCH
FOR A LARGE ARM SLING.
POINT AT ELBOW.

2ND POSITION

FIGURE B.



ESMARCH LARGE ARM SLING.
COMPLETED

FIGURE C.

SCULL CAP
WITH ESMARCH

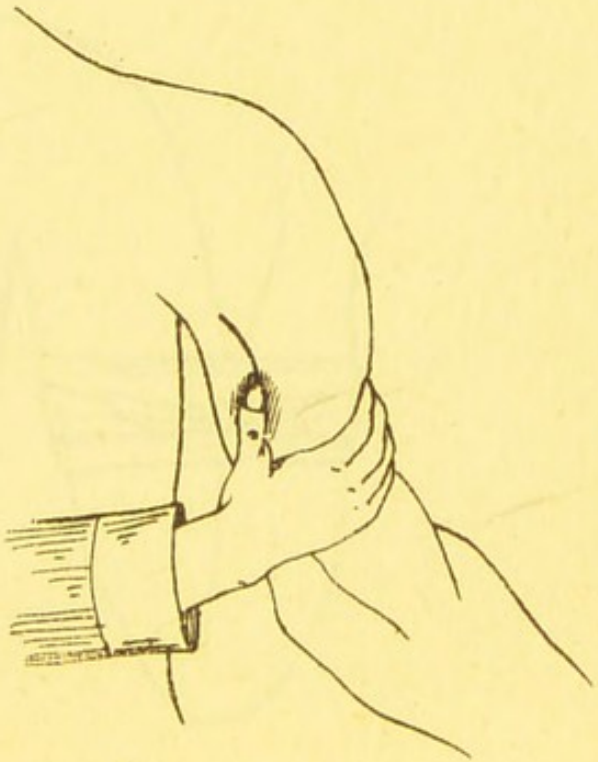
FIGURE D.

ESMARCH WITH DOUBLE TWIST
TO STOP BLEEDING FROM TEMPLE.

FIGURE E.

FINGER PRESSURE IN THE BIRD'S NEST
TO STOP BLOOD CURRENT THERE.

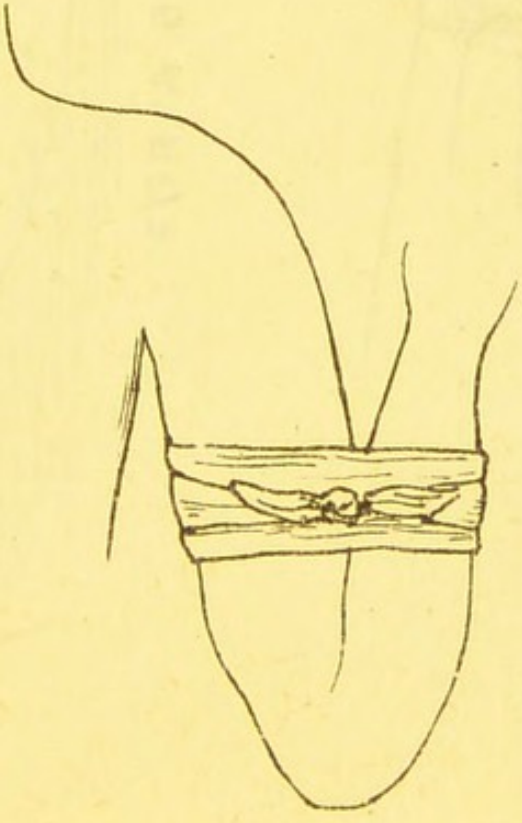
FIGURE F.



TO STOP BLEEDING ABOVE THE ELBOW

FIGURE G.

FINGER PRESSURE ON THE THIGH TO STOP ARTERIAL BLEEDING ABOVE KNEE.



TO STOP BLEEDING BELOW ELBOW

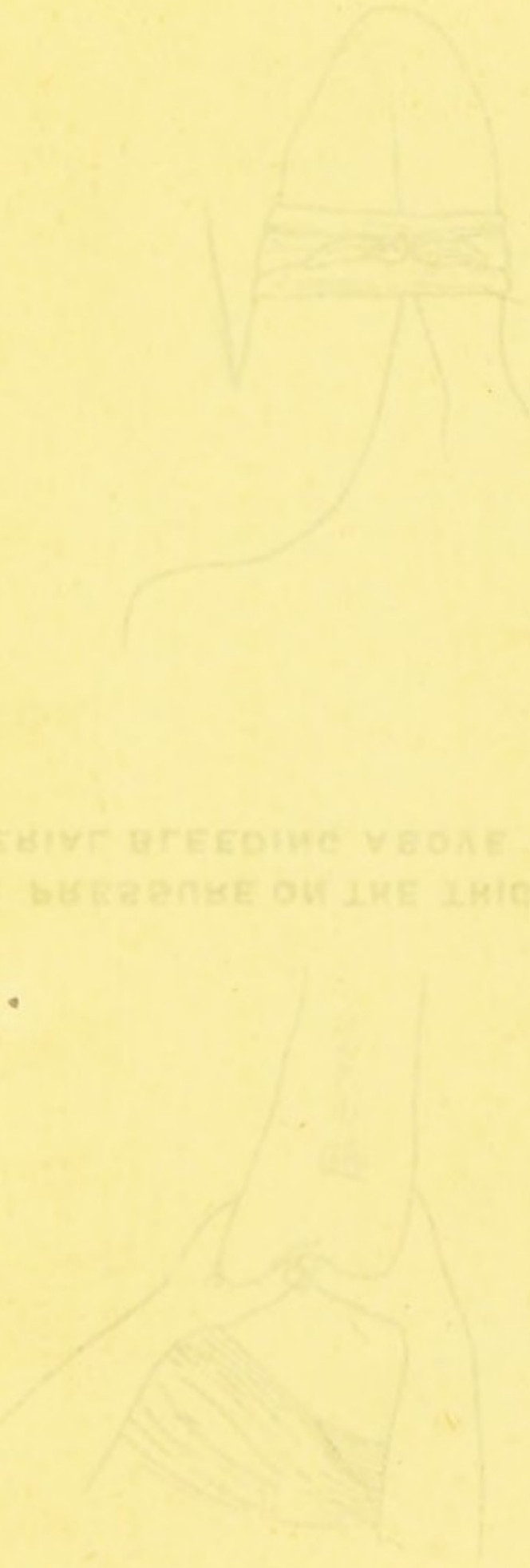
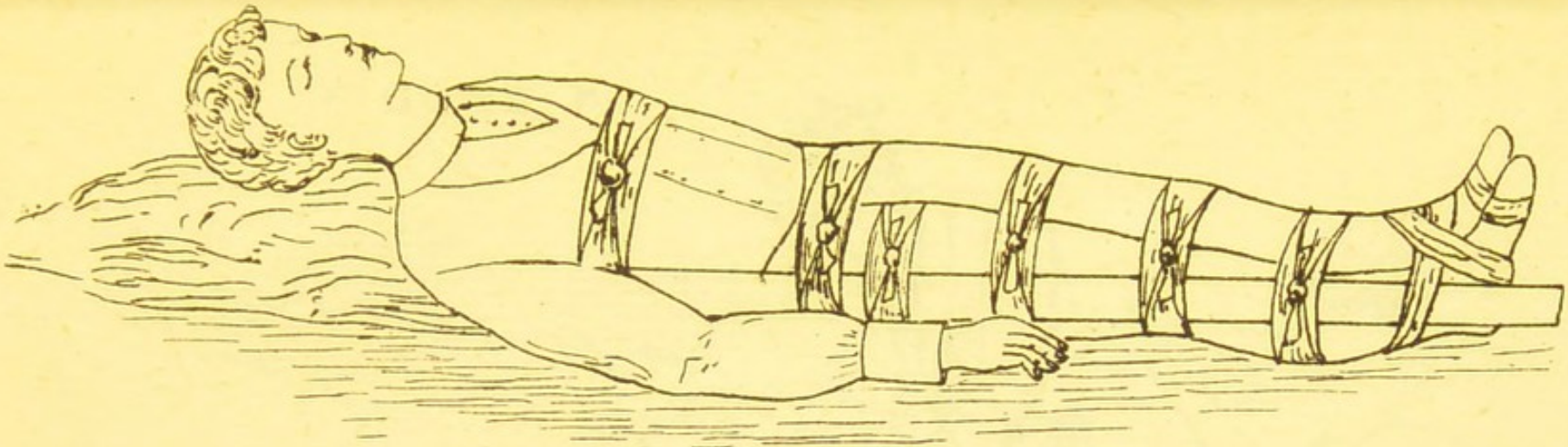
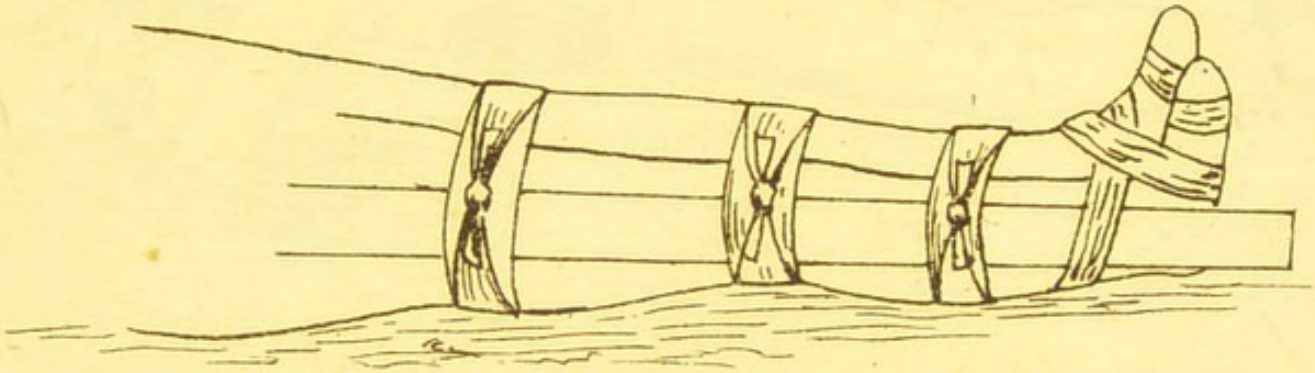


FIGURE J.



FOR A BROKEN THIGH BONE.



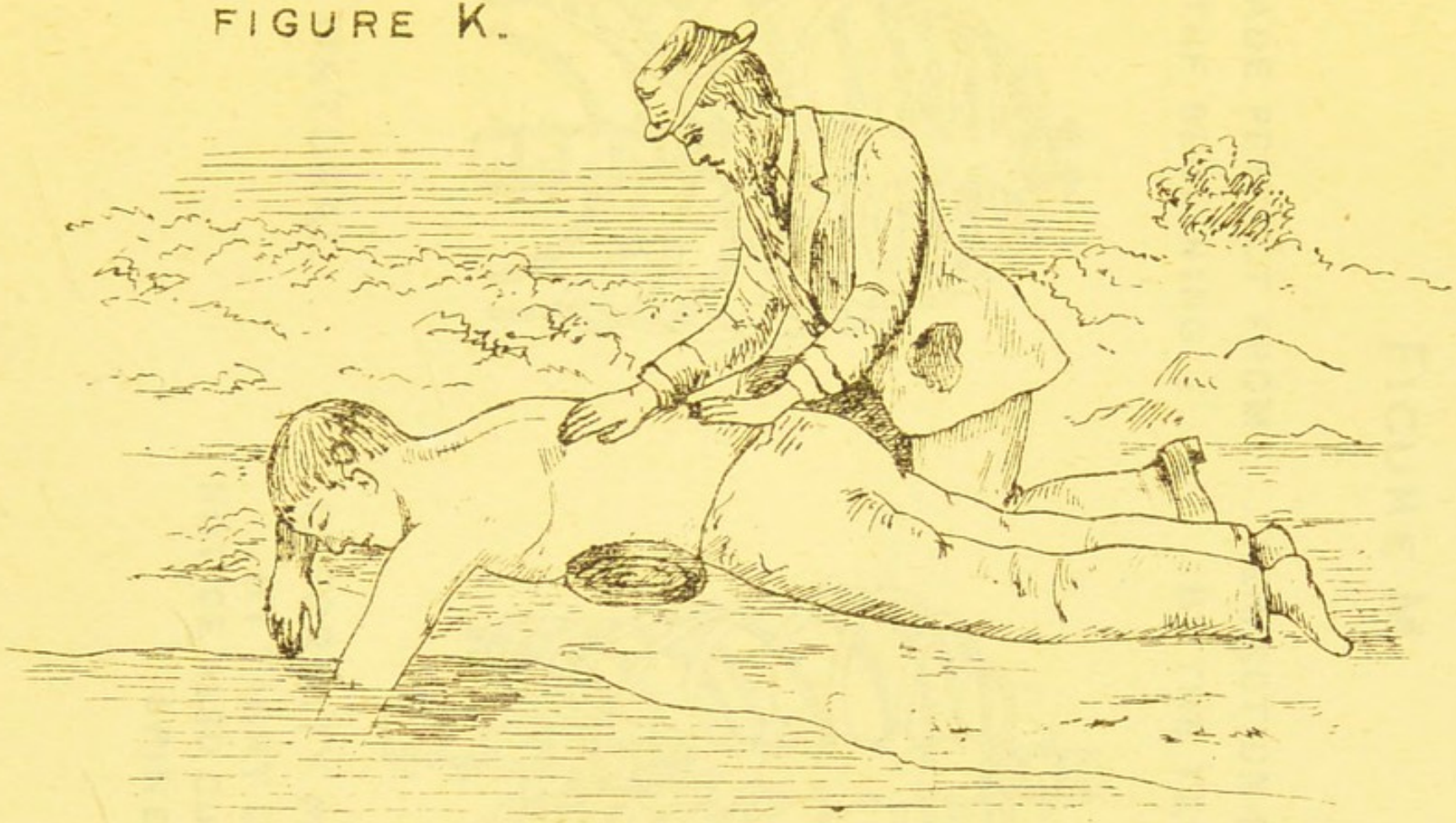
FOR A BROKEN LEG. (BELOW KNEE.)

FOR A BROKEN THIGH BONE.



FOR A BROKEN LEG (BELOW KNEE)

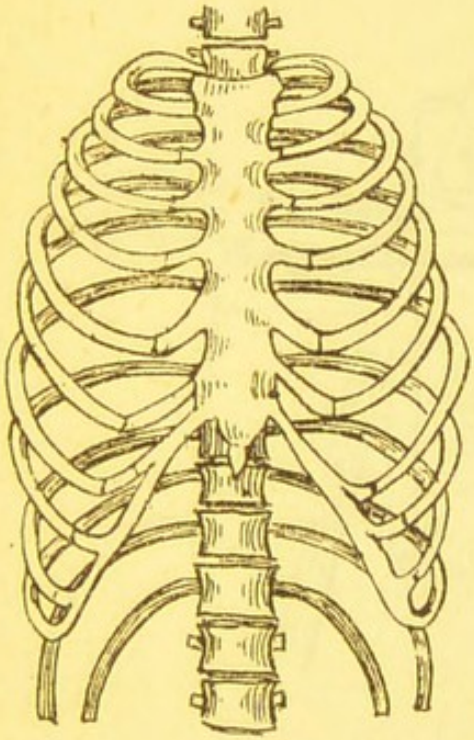
FIGURE K.



FIRST POSITION IN RESTORING THE APPARENTLY DROWNED.

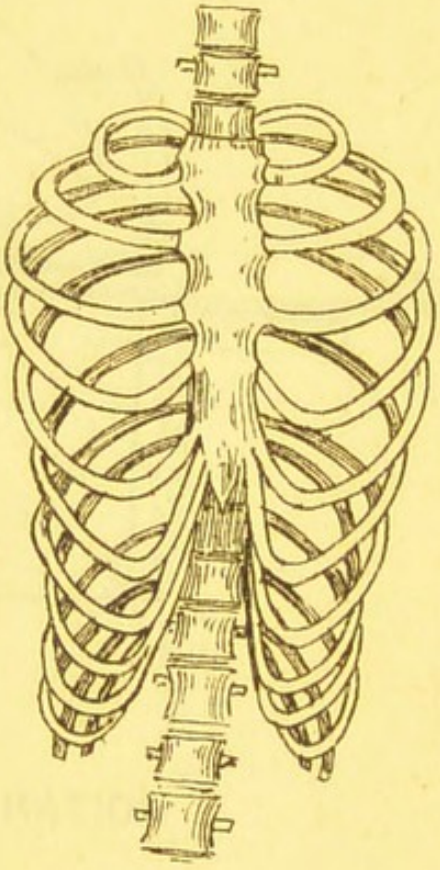
# FIGURE M.

MADE PERFECT FROM THE BEGINNING.



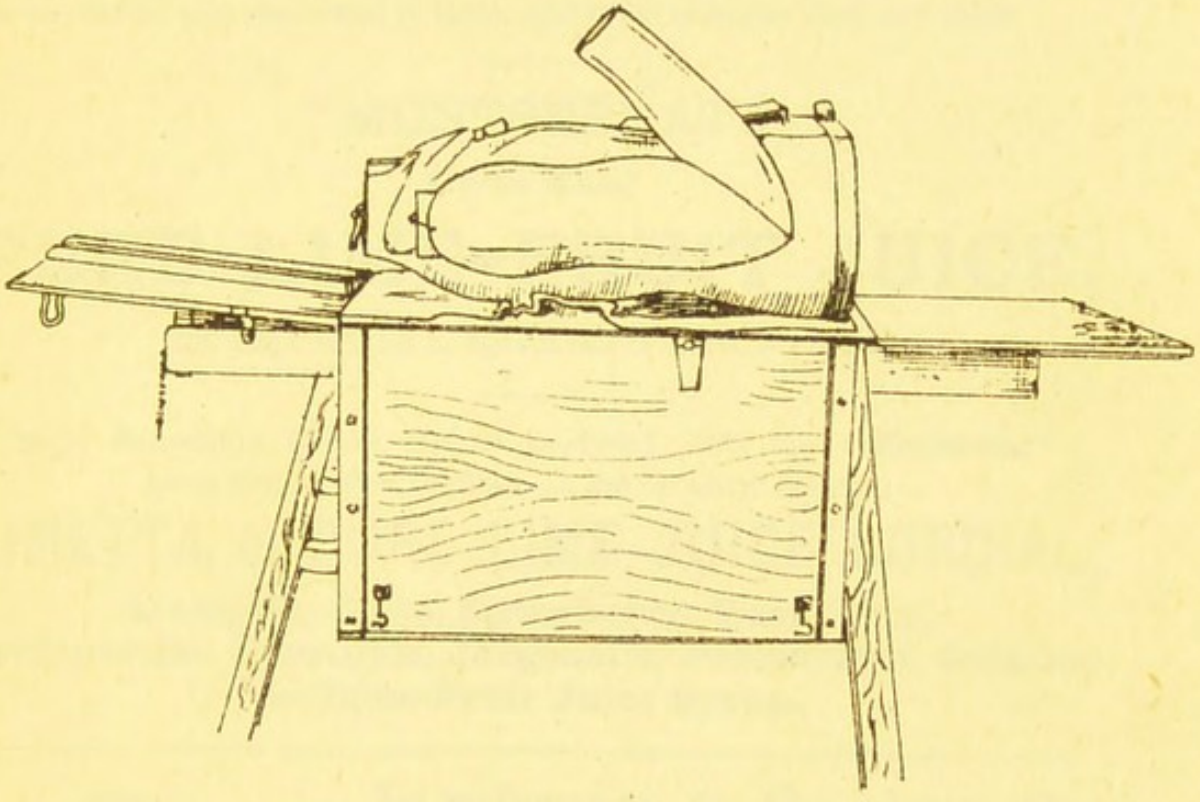
NATURAL

PERFECTION DESTROYED BY THE TENANT.



DEFORMITY PRODUCED BY TIGHT LACING NOTICE ALSO CURVATURE OF SPINE.

FIGURE Z.



ARTIFICIAL RESPIRATION
MODEL.

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(TRADE MARK)

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TRADE MARK.

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