LECTURE IV.

Sudden Attacks of Illness, Suffocation,* Etc.

First aid in cases of shock, stunning, compression of the brain, apoplexy, epilepsy, fainting, and intoxication—The immediate treatment of the apparently drowned, or otherwise suffocated—Burns, scalds, sunstroke, and frost-bite—Poisons—Bites from rabid and venomous animals—Foreign bodies in the nose, ear, and eye.

Shock or Collapse.

When a man meets with a very severe accident, such as having one of his limbs shattered, he not only suffers pain at the seat of injury, but he is altogether shaken. His whole system receives a shock; his face is pale, pinched, and haggard, and bears a vacant yet anxious and alarmed expression; he is frightened, faint, depressed, and complains of cold; he has lost all his "pluck"; he trembles and staggers; his skin feels cool and clammy; his breathing is feeble and labouring; his pulse is extremely weak, and sometimes can scarcely be felt. His friends say that he "has the fright in him," or that he is "upset." When a man is in this condition as the result of an accident, he is said to be suffering from *shock* or *collapse*. A person may die from shock immediately, as in accidents from lightning; or he may sink in a few hours after some terrible injury, such as an extensive burn, shattering of a limb, or wound of the cavity of the belly. In other instances the shock is very slight, and the patient soon rallies. People, as you know, differ very greatly in temperament, and an accident that would cause intense shock in one man would affect another to a very trivial extent. Weak, nervous, and timid people suffer more severely from shock generally than strong and robust ones. The signs of shock usually appear immediately after an accident; but in some instances they are delayed, and seem to be for a time controlled by the strong self-command of the

* Or, as it is called technically, *asphyxia*.

injured man, or else kept under by the all-powerful instinct of self-preservation. Thus a soldier who had his arm taken off close to the shoulder at the battle of Waterloo by a cannon-ball, rode upright for fifteen miles to Brussels, but became insensible from shock on his admittance into the hospital.* There is a peculiarity about shock that any of you who have had the misfortune of witnessing many accidents must be aware of. It is that the severity of the shock by no means always corresponds with the severity of the injury which causes it. When a man meets with a very severe and painful accident, you would naturally expect dangerous collapse as a result, and this is usually the case. But it is not always so, for people who are possessed of great determination and high spirit not unfrequently bear up with wonderful "pluck" and fortitude, even when very severely and dangerously hurt. On the other hand, it often happens that the signs of shock are severe, out of all proportion to the injury received, and a man who has been but slightly wounded is sometimes placed in extreme danger from the shock that follows. Death, indeed, occasionally occurs from shock when the injury itself is quite insufficient to account for it.

When a man is suffering from shock he is depressed, so you should speak kindly to him, try to cheer him up, and give what encouragement you can. He is faint, so you should place him in a lying-down position—flat on his back. He is cold, so you should cover him with clothes, blankets, or your own coat if there is nothing else handy, and put hot-water bottles, or heated bricks wrapped in flannel, to his feet, apply friction to the hands and surface of the body, and give him, if he is not perfectly insensible, some warm broth, tea, coffee, or *(if there is no risk of bleeding)* a *little* spirit or wine, mixed with hot water, to drink. If the patient is quite insensible, you can apply sal-volatile or smelling salts to the nostrils; but do not try to make him swallow anything, or he may choke. In all cases take care to remove anything tight about the neck, as the collar, necktie, etc.

* *Gunshot Injuries*—Surgeon-General Longmore.

Concussion of the Brain or Stunning.

When a man is *stunned* he is said to suffer from *concussion of the brain.* Stunning is caused by falls or blows on the head, and may be very severe, even fatal, or it may be extremely trivial. Most of us have had personal experience of slight concussion or stunning, and remember the giddiness and the stupid confused feeling which lasted a few minutes after a fall or a blow on the head, and then passed away. When the injury to the head is severe, the patient lies motionless and insensible, the pupils of the eyes are contracted, the face is pale, the skin feels cold, the pulse is weak, and the breathing slow and quiet. If he is roused or addressed in a loud voice, he answers peevishly, and falls back again into insensibility. By and by he gets uneasy, tosses about, vomits, and then quickly comes to himself. In bad cases the patient is perfectly insensible and cannot be roused at all; the pulse is very weak and irregular, the skin is cold and clammy, and he either dies or recovers very slowly.

In a case of stunning, place the patient in a lying-down position with the head slightly raised; keep him perfectly quiet, remove any tight articles of clothing, see that he has plenty of fresh air, wrap him up in blankets, and put hot-water bottles to his feet; and apply cloths, folded handkerchiefs, or sponges steeped in cold water, to his head.

Compression of the Brain.

Unfortunately much more serious mischief than stunning is often caused by accidents to the head. The skull may be broken, and a fragment of bone driven against the brain, or a blood-vessel may be ruptured inside the head with bleeding in the cavity of the skull—the blood pressing upon the brain.

In these cases of *compression of the brain* by pieces of bone or accumulated blood, the symptoms are very grave. The injured man lies in a state of complete insensibility; the pupils of the eyes are insensible to light, and one or both are dilated; the eyes themselves are quite insensible to touch – this of course shows how deeply insensible the patient is;

the breathing is deep and snoring, and there is a puffing or blowing movement of the cheeks and lips—these being blown out during expiration, and drawn in during inspiration; the pulse is slow and full; there is more or less complete paralysis, and sometimes convulsive movements; and there may be drawing of the face to one side, or squinting. As you might expect, persons injured in so serious a manner often die at once; but in a case of this kind, however bad it looks, never refuse your help because you think it useless. While there is life there is hope. It is, moreover, well to remember the saying of one of our greatest surgeons—Liston—"That no injury of the head is too trivial to be despised, or too serious to be despaired of."

I have already explained to you, when speaking of fractures of the skull, how you may best give aid in cases of compression of the brain.*

All the conditions I have so far been describing to you—shock or collapse, stunning or concussion, and compression—are the results of injury; but there are also certain kinds of disease—associated with a state of insensibility—which it is very necessary you should know something about. I allude to certain forms of sudden illness which are often met with, which frequently cause the greatest alarm, fright, and dismay among the bystanders and the relatives of the patient, and for which you can generally give valuable assistance before it is possible to obtain professional advice. I refer more particularly to those sudden and unexpected seizures which you know by such names as "strokes," "fits," and "faints"; and I also include certain forms of poisoning, viz. those in which there is insensibility or loss of consciousness.

Apoplexy—Apoplectic Fit—Stroke.

A man beyond middle age goes to bed apparently in good health, having taken a heavy supper; in the morning he is found helpless, his face flushed, and his mouth drawn a little to one side; he has a difficulty in speaking, so that you cannot well understand what he says; he moans, and tries to direct your attention to the arm and leg of *one* side of the body, and on examination you find they are perfectly

* See Lecture III.

helpless, and perhaps also devoid of feeling or sensation. If you lift either limb up a little, and let it go, it falls a dead weight and useless, and the patient has no power to move it. If you pinch either limb the patient in many instances does not feel you. The man has had a *stroke:* a diseased blood-vessel has given way in his brain, there has been internal bleeding, and the pressure of the escaped blood on the tissue of the brain is the cause of the symptoms I have described. In more severe cases the patient lies completely insensible, snoring loudly, the cheeks and lips puffing out with expiration and being drawn in with inspiration, the pupils of the eyes fixed and unequal in size, with more or less complete paralysis—in fact, with symptoms such as I described as resulting from compression of the brain.

Apoplexy is rather common amongst those who are in advanced years, and the seizure often occurs in the early morning, so that the sufferer is found helpless in bed. In other cases the patient is taken suddenly ill when sitting at a meal or going about his daily occupation, and he either falls insensible or sinks to the ground from the sudden loss of power of one side of the body.

In an emergency of this kind you may do great harm by attempting too much. You should lay the patient quietly in a lying-down position with the head slightly raised; and if he is not already in bed, take advantage of the nearest sofa, or get a bed or mattress moved into the room where the man was taken ill. The less you move the patient about or disturb him the better, for any rough or unnecessary movements are likely to increase the bleeding from the ruptured blood-vessel, and so make bad worse—probably, indeed, lead to fatal results. Loosen anything tight in the way of clothing, as the collar, waistcoat, braces, necktie, or scarf. Place hot-water bottles against the feet, and apply cold wet folded handkerchiefs, cloths, or sponges to the head, or ice broken up in small bits and tied in a bladder. See that the patient has plenty of fresh air. If the room is close open the window, and do not let the sick-room be crowded with noisy, sympathetic inquirers. Keep the patient still and quiet, and prevent him from being annoyed, excited, and worried by attempts at conversation. Do not give him anything to drink—stimulants are especially to be avoided, but send at once for a medical man, and wait for further instructions from him.

Epilepsy—Epileptic Fits—Falling Sickness.

Attacks of *epilepsy* are spoken of usually as *fits*. Many of you know people who are liable to these attacks, and some among you have frequently witnessed the seizures themselves. There is no mistake about an epileptic fit—no shamming or imposture. The patient when attacked falls suddenly, often with a moan or cry of some sort. It does not matter where he is, or what he is doing—he may be at his work, having his dinner, standing at the edge of a precipice, or warming himself before a fire; but when the fit comes on he falls suddenly—as suddenly as though he were shot dead—and he is *quite insensible.* Thus it happens that people subject to these fits are often badly hurt. It is common for them to bruise themselves severely by falling against something hard. If a man has a fit and tumbles into a fire he will, if no one is present to give help, be severely burnt—perhaps burnt to death; in the same way, if he should be seized on the brink of a precipice, he will fall down and be killed. The attack is sudden, and the insensibility complete; but the patient is not quiet and still. On the contrary, he works hard in the fit—his face is livid, his pupils dilated, his eyes roll, and his features are twitched and drawn all ways; there is a chewing movement of the mouth, the tongue gets between the teeth and is bitten, and the patient foams and froths at the mouth. At the same time the breathing is laboured, and the arms, legs, and trunk are twisted, jerked about in all directions, and twitched—in fact, violently convulsed. There is usually more or less twisting around towards one side in the fit. This is particularly noticeable in the head, which looks as if the patient was straining around and trying to look over his shoulder at something behind him. Altogether an epileptic fit is about the most horrible sight you can witness, and once seen is not readily forgotten.

You cannot stop a fit; it will have its own way, and take its own time; but you can prevent the patient from hurting himself. Remove him, if necessary, from a position of danger, and see that nothing interferes with the freedom of his breathing. He may fall across a line of rail, on to a fireplace, or in some other awkward and dangerous position.

Your first business would then, of course, be to get him into a place of safety. Next you should see that there is nothing tight about the neck and chest hampering his breathing. Remove or loosen his collar and scarf, and undo his waistcoat. Let him lie on his back, and slightly raise the head. You may save his tongue from being bitten by pushing a cork, a rolled-up handkerchief, a piece of indiarubber,—anything, in fact, handy and suitable,—between the teeth. Do not attempt to forcibly hold or tie the patient, but simply try and control the violent jerking movements of the limbs to some extent with your hands, so as to hinder the sufferer from hurting and severely bruising himself. After the fit the patient is often stupid, heavy, and sleepy, and it is best to let him rest quietly for some hours.

Hysteria—Hysterical Epilepsy—Hysterical Fits.

There is one form of disease which somewhat resembles epilepsy. It is called *hysteria*, and is usually found in weak nervous girls or young women. You may form some idea of it by considering it to be sham epilepsy. The girl never bruises herself, never tumbles down a precipice or into a fire, never hurts herself at all, never even tears her dress; she does not entirely lose consciousness, and never bites her tongue, though there may be frothing at the mouth, spluttering of the lips, and jerking movements of the head and body. She never has an attack unless there is some one present to witness it, and she is generally in an excited state—talking, laughing, or crying—when the seizure occurs. You need never be alarmed for the safety of the patient in a case of this sort. Show you are not alarmed by your manner, and ask unsympathetically and loudly (so that the patient may hear) for a jug of cold water. This will help to bring her round, and the cure will probably be completed when you dash the cold water smartly over her face and head.

Syncope—Fainting—Fainting Fits.

When a person's heart from any cause works feebly and fails to pump up a sufficient amount of healthy red blood to the brain and head, the face becomes ghastly white, the lips

even turn pale, there is a sensation of giddiness or "swimming" in the head, a feeling of sinking at the pit of the stomach, a singing noise in the ears, surrounding objects seem to float up and down, the pulse becomes very weak, and can scarcely be felt, and the man falls down insensible—in other words, he *faints*. Fainting may be brought about in many ways; it may be caused by bleeding, by heat, fright, sitting in a close room, going long without food, over-fatigue, general weakness, exhaustion, hearing bad news, etc. When giving first aid in cases of fainting your object is to restore the circulation of blood in the brain and head, so you should lay the patient down flat, with his head on or below the level of the body, and keep him in that position until he is better. Loosen the clothing about the neck and chest—the collar, necktie, shirt, and waistcoat. Let the patient have plenty of fresh air; if he is in a room open the window; if outside keep people from crowding around; dash cold water on the face, and, if they are at hand, apply sal-volatile or smelling-salts to the nose. Of course, if there is bleeding, you must at once arrest it, and when the patient revives sufficiently to swallow give him a little stimulant, as wine or weak brandy and water, to drink. It may happen that a man faints in a narrow confined space, so that he cannot be laid down flat on account of want of room. In such a case you should get his head as low as possible by pressing it well down between his knees.

But I must remind you that loss of consciousness or insensibility is not always the result of either injury or disease. It may be caused by certain poisons, as alcohol and laudanum. These substances, like arsenic, strychnine, and deadly nightshade, are very useful when given in proper doses at the right time in many cases, but if taken in too great a quantity hurtful effects are sure to follow.

Intoxication—Drunkenness—Poisoning by Alcohol.

There seems to be a mistaken idea amongst many people that "drink" never kills rapidly, but that persons who die from taking too much stimulant only sink after months—it may be years—of hard drinking. Never was there a greater mistake. Cases of acute poisoning from taking excess of stimulant are unfortunately too frequent. Men have been

known to die on the spot, from shock to the nervous system, after swallowing large quantities of spirit, and death from the same cause after a few hours is, comparatively speaking, a common event.

When a man is in danger from drinking he is in the stage of drunkenness usually described as "dead drunk." He lies helpless and insensible, his face often flushed and bloated, the pupils of the eyes equal in size, dilated, and fixed, the eyes themselves reddened, the lips livid, the breathing slow, the pulse soft and quick, and the body cooler than natural —the temperature being two or three degrees lower than it should be; the breath smells strongly of spirits or other stimulant; there is no squinting or drawing of the face, no frothing at the mouth, nor biting of the tongue, but the patient lies motionless and speechless, all the limbs being equally helpless.

People in this helpless stage of drunkenness are in a position of great danger, particularly if they are lying out in the cold; for, as I have told you, the heat of the body is much lower than natural when a man is intoxicated, and if he fails to reach home on a sharp frosty night the probability is that his drinking bout will end in the sleep of death. It is too much the fashion for people to pass men lying insensible on the roadside without taking any notice of them. They are so eminently respectable and so morally perfect themselves that they cannot possibly even look at any poor creature lying helpless and unconscious if they have the slightest suspicion that he has been drinking. Let me tell you that if you pass a man lying insensible without giving what assistance you can—without even informing the police or others—so that help of some kind and the means of removal may be obtained, you are guilty of gross and culpable neglect, you fail in your duty as a Christian, and you may indirectly be the cause of the man's death.

In these cases of intoxication, always get the patient under cover as soon as possible. If he is deeply insensible, try and rouse him by dashing cold water on the head and face. The effect of this is sometimes wonderful, the patient commencing to breathe well and deeply almost immediately after the application of the cold douche. Endeavour to make him vomit by tickling his throat with a feather or—if he is capable of swallowing—by giving him an emetic of mustard and water. Apply friction to the surface of the body by rubbing

the limbs and trunk well with warm dry cloths or flannel. Wrap the patient in blankets and put hot-water bottles to his feet, for it is of the utmost importance that the warmth of the body should be maintained. Never forget that the heat of the body in intoxication is lowered, whereas in apoplexy it is raised.* For this reason it has been suggested that police-officers should be taught how to take the temperature of those found in an insensible condition, as such instruction would be of help in distinguishing between apoplexy and drunkenness, and would, moreover, suggest the immediate "abolition of the practice of thrusting the really intoxicated into a cold and damp cell, which to such a one is actually an ante-room to the grave."†

Poisoning by Opium, Laudanum, etc.

In poisoning by laudanum and other substances containing opium the patient becomes sleepy and passes into a state of insensibility. The pupils of the eyes are contracted to the size of a pin's point, the breathing becomes slower and slower, and the insensibility deeper and deeper. The great thing in a case of this kind is to make the patient vomit as soon as possible by the administration of emetics, and to keep him awake by walking him about, dashing cold water on his head and face, and giving him strong coffee to drink. If the breathing should cease, artificial respiration (which I shall describe later on) must be resorted to.‡

Blood Poisoning from Kidney Disease.

When the kidneys from any cause become diseased, they fail to perform their proper function of excreting or getting rid of certain hurtful materials which result from the decay, waste, and wear and tear of the different structures of the body. These products of waste, therefore, accumulate in the blood and act as poisons, giving rise to insensibility and convulsions, which more or less resemble epileptic fits in their appearance. In these cases the patient has usually com-

* The usual temperature in health is 98° Fahr.
† *Cantor Lectures on Alcohol*, Dr. B. W. Richardson.
‡ The whole subject of poisons is discussed on pages 120-122

plained previously of illness, and there is moreover generally dropsical swelling of the lower limbs and face—it may be, indeed, of the whole body. If you meet with a case of this description, and recognise its nature, you should apply cold to the head, a mustard poultice across the loins, and administer (if the patient is able to swallow) any household aperient medicine, such as castor oil, etc.

The different varieties of *insensibility* or *loss of consciousness* may be conveniently arranged in a table, which may enable you to get a clearer idea of their several causes :—

1. Injuries of any kind in any part of the body	Shock or Collapse.
2. Injuries to the Head	Stunning or Concussion. Compression of Brain.
3. Diseases of the Brain	Apoplexy. Epilepsy. Hysteria.
4. Fatigue, Fright, Bleeding, Debility, etc., causing failure of heart's action.	Fainting.
5. Poisoning.	Intoxication Opium poisoning. Poisoning of the blood due to kidney disease.

I will finish my remarks on this subject by describing the precautions you should take, and the way you should set about trying to discover what is the matter, when you meet with any one lying helpless and more or less completely insensible.

Always be particular to note the position of the body and its surroundings; the case may end in a law court, and you may have to give evidence as to marks of blood, torn clothing, bruises, knives, or other weapons, the state of the ground —whether much trampled on, etc.—the posture in which you found the body, and other similar matters. Try and find out the cause of the patient's condition. Due attention to the surroundings may help you in this; thus, if the patient is lying prostrate at the foot of a ladder or high scaffolding you would suspect concussion, compression, or other injury resulting from a fall; or if there is an empty bottle labelled laudanum, or a flask smelling of whisky, lying near, you would think the man had taken poison or had been drinking.

But without loss of time you should place the patient flat on his back, with the arms to the sides and the legs extended straight close to one another, and the head slightly raised if the face is flushed, but perfectly flat if the face is pale. If there is the slightest inclination to vomit, the head should be immediately turned to one side, or the patient may be choked by the matters rejected from the stomach. You should also loosen all tight clothing about the neck and chest—collar, scarf, shirt, braces, and waistcoat—so that nothing may interfere with the breathing or with the return of blood from the head; and you should carefully examine the head, trunk, and limbs for any signs of injury—wounds, bruises or fractures. The position of some injury may be indicated by blood, torn clothing, or by the patient clutching the part that is hurt. If the head is injured you would suspect concussion, or, if there are fixed dilated pupils, stertorous or snoring breathing, squint, drawing of the face to one side, or other signs of serious brain mischief, compression. If the trunk is severely wounded, or one of the limbs badly hurt or shattered, then you would think of shock; whereas if there is smart bleeding going on, and the face and lips of the patient are ghastly white, then you would judge that the case was one of fainting. If there is arterial or venous bleeding going on you should of course arrest it promptly; and if the patient is in a violent epileptic fit, which you could hardly fail to recognise, you should endeavour to prevent him biting his tongue or otherwise hurting himself. If the patient does not appear to have sustained any injury, but is flushed, deeply insensible, his skin feeling hot, his pupils fixed and dilated—one bigger than the other—his face drawn to one side, his breathing of a snoring character, etc., then you would consider you had apoplexy to deal with. If the breath smells strongly of brandy or other stimulant, and the face is bloated and flushed, the eyes red, the pupils dilated and equal in size, the skin cool and clammy, and the pulse full and quick, then the patient is probably dead drunk. In opium poisoning the pupils are contracted to a pin's point, and this, with the slow breathing, the deepening insensibility, with the absence of any smell of stimulant, should make you suspicious of the true state of the case. If you have to deal with an insensible person, it is always best and safest to obtain medical aid as quickly as possible; and if a doctor does not happen to be near, it is better without loss of time to

convey the patient on a stretcher or in a trap to the nearest hospital or surgery. In many cases it is extremely difficult to ascertain the cause of the insensibility. Indeed, there is not unfrequently a complication. Thus, a man may be dead drunk and apoplectic at the same time; or he may be so deeply and dangerously intoxicated that all your attention becomes concentrated on his drunken state to the neglect of some important injury from which he is suffering as well—such, for example, as broken ribs or a fractured thigh.

Drowning.

The following directions for restoring persons apparently drowned are taken, with but slight alteration, from the instructions issued by the Royal Humane Society:—

Send for medical assistance, blankets, and dry clothing, but proceed to treat the patient *instantly;* and, when possible, *in the open air*, exposing the neck, face, and chest to the wind, except in extremes of weather, as intense cold, heavy rain or snow, etc.

The points to be aimed at are, *first* and *immediately*, the restoration of breathing; and *secondly*, after breathing is restored, the promotion of warmth and circulation.

The efforts to restore life must be persevered in until the arrival of medical assistance, or until the pulse and breathing have ceased for an hour.

The Sylvester Method of Restoring Natural Breathing.

Rule 1. *To adjust the patient's position.*—First lay the patient flat on his face, supported by folded articles of clothing, with one of the arms under the forehead, and the head rather lower than the body, so that any water in the mouth and air-passages may drain off; then quickly place the patient on his back, or on a flat surface, inclined a little from the feet upwards; raise and support the head and shoulders on a small firm cushion or folded article of dress placed under the shoulder blades. Remove all tight clothing from about the neck and chest, such as collar, neck-tie, scarf, braces, stays, belt, etc.

Rule 2. *To maintain a free entrance of air into the windpipe.* Cleanse the mouth and nostrils; open the mouth; draw forward the patient's tongue and keep it forward. An elastic band over the tongue and under the chin will answer this purpose.

Rule 3. *To imitate the movements of breathing.—Firstly,* induce inspiration.—Place yourself at the head of the patient, grasp his arms, raise them upwards by the sides of his head, stretch them steadily but gently upwards for two seconds. (By this means fresh air is drawn into the lungs by raising the ribs; see Fig. 34, Inspiration).

Secondly, induce expiration.—Immediately turn down the patient's arms, and press them firmly but gently downwards against the sides of his chest for two seconds. (By this

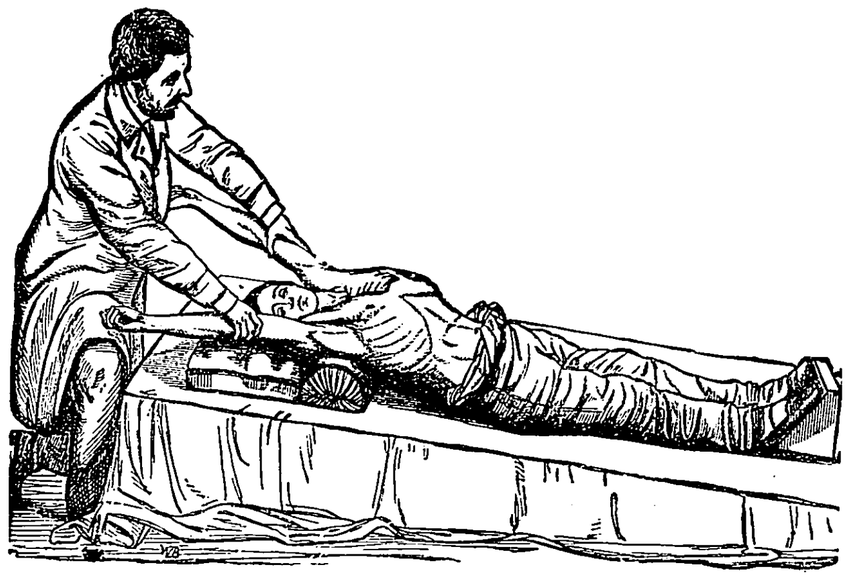

Fig. 34.—Dr. Sylvester's method of performing artificial respiration—*Inspiration.*

means foul air is expelled from the lungs by depressing the ribs; see Fig. 35, Expiration).

Thirdly, continue these movements.—Repeat these measures alternately, deliberately, and perseveringly fifteen times in a minute, until a spontaneous effort to respire be perceived. (By these means an exchange of air is produced in the lungs similar to that effected by natural respiration).

Rule 4. *To excite respiration.*—While you are busy performing artificial respiration, some one else should excite the nostrils with snuff or smelling salts; tickle the throat with a feather; rub the chest and face briskly, and dash cold and hot water alternately on them, or flap the chest with a wet towel; and rub the body and lower limbs with dry flannel or cloths.

FIG. 35.—Dr. Sylvester's method of performing artificial respiration—*Expiration.*

TREATMENT AFTER NATURAL BREATHING HAS BEEN RESTORED.

To induce circulation and warmth.—Wrap the patient in dry blankets or warm clothing (which, if necessary, can usually be borrowed from the bystanders); and rub the limbs upwards energetically, thus pressing the blood along the veins towards the heart. Promote the warmth of the body by hot flannels, bottles or bladders of hot water, heated bricks, to the pit of the stomach, the armpits, and to the soles of the feet.

On the restoration of life, when the power of swallowing has returned, a teaspoonful of warm water, small quantities of wine, warm brandy and water, or coffee, should be given. The patient should be kept in bed, and a disposition to sleep encouraged. During reaction large mustard plasters to the

chest and below the shoulders will greatly relieve the distressed breathing.

These directions are so simple that you cannot fail to easily understand them, and I wish you to study them very carefully; and when you meet for practice you should try to imitate the movements of breathing, or, in other words, perform *artificial respiration*, one on the other. The method of performing artificial respiration recommended by the Humane Society is that introduced by Dr. Sylvester; there are, however, several other methods, notably those of Dr. Marshall Hall, and Dr. Howard of New York. All these various plans are only different ways of doing the same thing—viz., imitating as closely as possible the movements of natural breathing. It is better that you should confine your attention only to *one* method of performing artificial respiration in order to avoid confusion; and that introduced by Dr. Sylvester is, I think, the best one for you to adopt, because, first it is found to be very successful; secondly, it can be performed by *one* person alone; and thirdly, it is very simple, and does not require any great amount of skill to practise it.

HANGING.

Suicides not unfrequently choose this way of destroying themselves. Should you meet with a case, cut the body down immediately. You may be surprised that I should direct your attention specially to what your own common sense would, or ought to, tell you; but I do so purposely, as it too often happens that very precious time is wasted by persons, when they see a body hanging, running off to tell some one else what has occurred. Your only chance of doing any good, if you meet with a case of this kind, is to cut the body down *at once*, and loosen the noose around the neck, taking care, however, while you do it that you so support the body with one arm as to prevent further injury by a heavy fall. Loosen anything tight in the way of clothing about the neck and chest, such as the collar, necktie, waistcoat, shirt, and braces. Let the patient have as much fresh air as possible—if in a room open the window. Dash cold and hot water alternately on the face and chest, and use vigorous friction to the limbs and body by means of dry

flannels or cloths. Apply snuff or smelling-salts to the nostrils; and endeavour to restore natural breathing by artificial respiration.

Suffocation by Gases.

Persons may be suffocated by breathing "choke-damp" in mines, charcoal vapour, sewer gas, the vapours from burning lime-kilns, brick-kilns, and cement-kilns, the smoke in a burning house, coal gas, the vapours from blast-furnaces, the foul air in wells, cellars, deep cuttings and excavations, and the close confined air of overcrowded rooms. In these cases the great thing is to drag the patient as quickly as possible into fresh air. Unfasten the clothing about the neck and chest. Dash cold water on the head, face, and upper part of the chest; and if the breathing has stopped resort to artificial respiration.

Choking.

People are occasionally in danger of suffocation, and sometimes actually die, from pieces of food, coins, or other substances sticking in the throat in such a way as to stop, more or less completely, the passage of air into the windpipe. If the entrance to the air passages is completely blocked of course insensibility and death rapidly follow, unless the obstruction is speedily removed. In most cases, however, it fortunately happens that the block is not complete, so that there is more time for help to be given to the patient by those about him. Most of you know very well from personal experience the signs of choking—the distressing difficulty of breathing, the cough and retching, the violent efforts to get rid of the offending substance, the dusky bluish colour of the face, the prominence of the eyes, the tossing about (by the sufferer) of his arms or the clutching of his throat—followed, if relief is not speedily obtained, by unconsciousness. In bad choking, where the patient suddenly turns dark in the face, throws his arms out wildly or snatches at his throat, and falls insensible, no time is to be lost. You

must open the mouth, and push your forefinger over the tongue right back, and try to hook away or push aside the obstructing substance. If you do not succeed in this you may—by pressing the hinder portion of the tongue—bring on vomiting and so get rid of the obstruction. A good plan is the one which you see so often practised with children, viz. that of pressing the chest and stomach against something hard, as a table or a chair, then slapping or thumping the back between the shoulder blades; in this way air is driven from the lungs along the windpipe so forcibly as often to dislodge the obstruction. Another good plan with a child is to take the little patient up by the heels and give it a shake or slap its back at the same time. This method has at times acted very successfully, particularly where the obstruction consisted of a coin, as a shilling or a halfpenny. It often happens in cases of choking that the patient can manage to swallow liquids even when the breathing is distressing and difficult; in such instances emetics—hot water, salt and water, mustard and water, ipecacuanha wine, etc.—can be given with great effect, as the vomiting they cause clears away the offending substance.

Burns and Scalds.

Injuries caused by excessive heat in one form or another are of common occurrence, particularly in parts of the country where large ironworks, mines, and manufactories of different kinds exist. Injuries produced by flame or hot solid substances are usually called *burns*, whereas injuries caused by hot liquids are generally spoken of as *scalds*.

Burns result from such accidents as explosions of gas and gunpowder, falls into fireplaces and furnaces, contact with hot metal, burning clothes, etc. For the sake of convenience we may also include under burns the injuries caused by strong chemical agents, such, for example, as oil of vitriol, carbolic acid, caustic potash, etc. Scalds occur from such accidents as boiler explosions, contact with boiling water, steam, hot oil, or other heated liquids. When a person is severely scalded or burnt, send at once for medical aid, but proceed to give what assistance you can. In the first place, be very careful how you remove the clothes. Do not

attempt to pull them off, but cut them off with a sharp scissors or knife, so that you can remove them without adding to the sufferings of the patient, and what is more, without pulling off the skin from the injured part with them. If in a severe burn there is a portion of the clothing that sticks tightly to the skin, do not drag it off, but cut it around with your scissors and leave it where it is. It is the custom in this neighbourhood to apply equal parts of linseed oil and lime-water to these injuries; and it is indeed about the best application you can use. This mixture of linseed oil and lime-water goes by the name of *carron oil*, because it was first used at the Carron ironworks. You should soak pieces of linen, lint, or any soft clean rags, into the carron oil, and then cover the burnt or scalded part with them, placing over all a layer of cotton-wool, wadding, or flannel. A quick and ready way is to get a number of sheets of wadding, cover one side with carron oil, and put them on the burnt portions as speedily as possible, securing them by bandages, handkerchiefs, lint, or anything convenient; a number of patients can be dressed very rapidly by this method. If lime-water is not at hand you should use linseed oil by itself, or olive oil, castor oil, almond oil, or *fresh* lard would do. If no oil of any kind is available, you can dust or dredge flour, whiting, or prepared chalk thickly over the injured part, and then cover the whole with wadding in the usual way. Whatever application you make use of, remember that your object is to keep the air from the injured part. If the pain is extremely severe a strong solution of carbonate of soda, lime, or magnesia applied by means of pieces of lint, linen, etc., steeped in it—the whole being encased in wadding in the ordinary way—will sometimes afford great relief.

The inside of the mouth and throat may be dangerously scalded, as when a child sucks at the spout of a kettle full of boiling water, with hoarseness, choking, and danger of suffocation as the result. In such cases, sponges or flannels wrung out of hot water, or other hot moist applications, should be put around the throat, and oil—olive, linseed, etc.—be given the child to drink.

Burns from strong chemicals, as oil of vitriol, carbolic acid, aquafortis, spirit of salt, lime, caustic potash or soda, and other similar substances, are caused by such casualties as falls into lime-kilns, explosions in chemical laboratories, and accidents in the various chemical manufactories; they

are sometimes also caused wilfully and maliciously, as when a man throws oil of vitriol into the face of another, or pours it into his ear or mouth as he lies asleep. In these cases you should at once get rid of the obnoxious chemical by bathing the patient with cold water, or if necessary by throwing buckets or basins of water over him, or by putting him in a bath or the nearest pool. If the chemical is an *acid*, then its action is best counteracted by mixing soda or lime, if you can get either of them at once, with the water; but if the injury is caused by some *alkali*, as caustic potash or lime, then the part should be washed with water to which some acid, as vinegar, has been added. After the injured part has been thoroughly cleansed, then it should be dressed with oil in the same manner as other burns.

Sunstroke and Heatstroke.

When people are exposed for a considerable time either to an intensely hot atmosphere or to the direct powerful rays of the sun (particularly if their clothing is too heavy and worn too tightly, and if they have undergone much fatigue), they are liable to suffer from giddiness, a feeling of sickness, great heat and thirst, and in a short time drop insensible—the skin being hot and dry, the eyes reddened and the pupils contracted, the pulse quick, and the breathing noisy and hurried. Such cases are described as *sunstroke* and *heatstroke;* they occur most frequently in hot climates, and often terminate fatally. If you ever happen to meet with such a case, you should get the patient at once into the nearest shady place, put him into the lying-down position with the head slightly raised, remove all the clothing from the upper part of the body, and dash cold water freely over the face, neck, and chest. On no account give stimulants.

Frostbite.

When people are exposed to intense cold (more especially if they are exhausted, or the heat of the body is lowered by drinking) they become stiffened, pale, sleepy, and very cold: the extremes of the body, as the fingers, toes, nose,

and ears, get quite numbed, shrunken, and of a pale bluish colour; and this state is followed, if no help arrives, by complete insensibility and death. A patient in this condition should on no account be taken either near a fire or into a warm room. He should first of all be placed in a *cold* room, and well rubbed with snow, washed with cold water, or placed in a cold bath; afterwards he should by very slow degrees be brought into a warmer atmosphere, and rubbed with dry and warm cloths; and, finally, a little very weak and cold stimulant may be given. But in this country it is generally the local effects of extreme cold, such as numbed and frost-bitten fingers and toes, that we have to deal with. For instance, men who have to handle cold metal, as iron rails, etc., in frosty weather, often get their fingers stiffened, cold, numb, and blue-looking; and should they unthinkingly try to warm their hands at a fire the reaction is so violent that the circulation gets blocked, and mortification of the fingers is the result. Your main object in these cases is to restore the numbed parts to their natural state as gradually as possible; you should keep the patient quite away from any fire or warm room, and rub the affected part with snow, bathe them with cold water, hold them between your own hands, and after a time wrap them in flannel.

Poisons.

Poisons may be described as substances which, when swallowed, are capable of destroying life. They produce their effects in different ways, and have been arranged in groups or classes by several authorities according to the manner in which they act. It will be quite sufficient for my purpose, however, if you consider all poisons to belong to one or other of two groups, viz. *irritants*, or *narcotics*.*

By *irritants* I refer to those poisons which irritate and destroy the tissues of the body with which they come into contact. Such are oil of vitriol (sulphuric acid), aquafortis (nitric acid), spirit of salt (hydrochloric acid), carbolic acid,

* Poisons are often grouped into three classes—irritants, narcotics, and narcotico-irritants, which combine the properties of irritants and narcotics. For the sake of simplicity I divide all poisons into only *two* classes, one of which you treat *with*, the other *without*, emetics.

lime, caustic potash and soda. These powerful chemical agents burn and destroy the different parts as they touch them; the lips are stained, and the inside of the mouth, throat, gullet, and stomach is more or less corroded and destroyed. As you might expect, these poisons cause intense suffering, a burning sensation in the mouth and throat, and fearful agony in the stomach and belly, with retching and vomiting—blood and shreds of the lining membrane of the stomach often being among the rejected matters.

The other poisons, which you may conveniently group under the title of *narcotics*, since they usually produce more or less stupor, insensibility, or delirium, vary a good deal in their action; thus morphia, laudanum, and opium cause heavy sleep; strychnine brings on convulsions or fits; deadly nightshade (belladonna) and henbane induce violent mental excitement and delirium; and alcohol causes intoxication.

In all cases of poisoning send at once for the nearest medical man, and be sure to acquaint him with all the particulars, so that he may bring his stomach pump and anything else that he may think necessary. Do not lose any time yourself, however, but (*unless the poison is an irritant*, as oil of vitriol, etc.), try your best to get the poison out of the patient's stomach by means of emetics, or, in other words, by giving him something to make him sick. You may bring on vomiting by giving a tablespoonful of mustard in a tumbler of warm water, or the same amount of common salt with warm water. If there is any ipecacuanha wine at hand (it is kept by many people as a household remedy) one or two tablespoonfuls mixed with warm water will make a powerful emetic. If the patient is already retching, you may afford much relief and greatly assist vomiting by giving him copious draughts of water as warm as he can drink it. Should a chemist live close at hand you could send for twenty grains of sulphate of zinc, and give it to the patient in warm water. This is an emetic that rarely fails. Tickling the back of the throat with your finger or a feather is another ready mode of causing vomiting, and may prove of great service if you should chance to be far away from any houses, and unable to lay your hand on mustard, salt, or other materials of which to make an emetic.

If the patient is very drowsy, you must use every effort to keep him awake by dashing cold water on his head and face,

giving him strong coffee to drink, and walking him about. If he becomes insensible, try and rouse him by throwing cold water smartly on the face and chest, flicking him with a cold wet towel, and, if the breathing threatens to stop, perform artificial respiration.

In poisoning by *irritants*, such as oil of vitriol, caustic potash, etc., the manner in which you can best give first aid differs from that most suitable for cases of narcotic poisoning. You should *not* give emetics, but should endeavour to save the gullet and stomach as much as possible from the destructive action of the poison by giving soothing drinks, as barley water, milk, flour and water, white of egg, almond oil, linseed oil, castor oil, olive oil, etc. You should also endeavour to counteract the effects of the poison—*if it is an acid*—by giving magnesia, soda, potash, chalk, whiting, plaster from ceilings or walls of rooms, soap suds, or lime, mixed with plenty of water; and *if it is an alkali*, vinegar, acetic acid, or lemon juice, also much diluted with water. The back of the throat and the entrance to the windpipe is often more or less injured in these cases of poisoning by irritants, giving rise to choking, hoarseness, cough, difficulty of breathing, and risk of suffocation. For these distressing symptoms you should apply sponges or flannels, wrung out of hot water, around the throat.

In cases of poisoning you should always, if possible, preserve the vomited matter, also any bottles or vessels of any kind that have contained the poison or suspected liquid, as the medical man will probably wish to examine them, and it may be that evidence in connection with them may have to be given in a court of law. You should, moreover, always endeavour to find out what the particular poison is that the patient has taken. You will generally have no difficulty in recognising a case of irritant poisoning, even if the patient is unable to tell you, by the stains on the clothes, chin, and lips, the burning sensation in the mouth and gullet, the frightful agony in the stomach and belly, the retching and vomiting of blood, shreds of tissue, etc.

Bites from Rabid and Venomous Animals; and the Stings of Insects.

In this country there are fortunately not many accidents of this kind, but occasionally people are *bitten by mad dogs* and also *by the common viper*.* Rarely, too, we hear of the keepers in menageries being bitten, through carelessness or misfortune, by some foreign serpent which is kept for public exhibition. If you wish to do any good in these emergencies you must act quickly; tie an elastic band, a piece of cord, a handkerchief, or other ligature tightly around the limb *above* the wound—that is, on the side nearest the heart, so as to arrest the circulation and thereby prevent the poison or venom from being carried into the system. After you have made the ligature quite secure, try to get rid of the poison by bathing the wound well with water (*hot* if you can get it), and sucking it. If you have no cracks or abrasions on the lips and in the mouth, you can suck the poison out of the wound with safety to yourself, but it is always better to rinse the mouth well out first with brandy or other strong spirit, if such be available. Of course, in a serious case of this kind (in which the dog is known to be mad, or the snake to be very venomous), medical aid should be sought for *at once*, but you should lose no time in arresting the circulation by applying a ligature above the wound, and then, if the doctor does not arrive immediately, trying to destroy the poison by thoroughly burning the wound with a red-hot wire, knitting-needle, or cinder, a lighted fusee, strong-fuming nitric acid, or, as has been done in India, by placing gunpowder on the wound and firing it. Snake bites are productive of very great depression and faintness, so that ammonia, brandy, or some other powerful stimulant must be administered in these cases. Ammonia is also recommended as an external application. The *stings of insects* are sometimes exceedingly painful, and in some instances are followed by considerable depression and faintness. The first thing is to remove the sting. This, in the case of bees

* It is very different, however, in some of our foreign possessions. For example, in India, in the year 1883, no less than 20,067 deaths occurred from snake bites.

and wasps, can be done by pressing a watch-key firmly down over the sting, which is thereby forced up into the hollow of the key. Ammonia, as sal-volatile, or in any other convenient form, should then be applied to the painful part, and any faintness and constitutional depression should be relieved by the administration of ammonia, brandy and water, wine, or other stimulant.

Foreign Bodies in the Eye, Ear, and Nose.

Eye.—You only increase the pain and irritation by rubbing the eye when bits of sand, grit, etc., find their way into it, and the same remark applies to random and careless attempts to remove the foreign body by means of pins, pieces of wire, and similar articles. It is better to close the eye for a time, when the tears will accumulate, and perhaps wash out the offending substance on to the cheek or the edge of the eyelid. An improvement on this way of proceeding is to hold the face over some sliced onions which cause the eye to "water" so freely that if the irritating particle is not actually imbedded the patient will, as a rule, readily get rid of it. Another plan is to pull the upper eyelid well down over the lower one, two, or three times successively. In this way the lower eyelashes sweep or brush the inner side of the upper eyelid, and in some instances clear away the offending particle. I find it stated that in an iron factory, where accidents of this kind were common, the usual plan was to pull the upper eyelid well down over the lower one and at the same time to close the nostril *of the opposite side* with the thumb or finger, and to *forcibly blow the nose;* and further, that this method, if the bit of grit was not imbedded and fast, was never known to fail.* If, however, you do not succeed by these means in getting the foreign body out of the eye, stand behind the patient (who should be sitting down), place a narrow pencil, a probe, piece of wire, a knitting-needle, or a large pin, on the top of the upper eyelid, and, seizing hold of the eyelashes with the finger and thumb of your disengaged hand, turn the lid upwards over the pencil, or whatever it is you have got. The eyelid is thus turned inside out, and the offending piece of

* *Ambulance Handbook*, J. Ardavon Raye.

dirt, grit, or metal may be readily swept away by a feather, small brush, or a moistened corner of your pocket-handkerchief. If, as occasionally happens, the foreign body is under the lower lid, you can very easily draw the lid down and sweep the offending particle away. Should the foreign body—a bit of steel, iron, flint, or other hard material—be firmly imbedded and fixed in the clear portion of the eye, or, as some say, "in front of (or near) the candle," drop into the eye a small quantity of sweet oil or castor oil, protect the part by covering it with a folded handkerchief, and seek medical advice. Should mortar or lime get into the eye you ought to wash the eye *at once*, when practicable, thoroughly with a tepid weak mixture of vinegar and water, about two teaspoonfuls of vinegar to three or four tablespoonfuls of water, and carefully get rid of any small fragments from under both upper and lower lids. A little oil should then be dropped into the eye.

Ear.—Foreign bodies in the ear may sometimes be got rid of by gentle syringing with tepid water—that is, substances that will not swell, as peas, by such application. Insects can be easily removed by pouring warm oil into the ear—the patient hanging his head towards the opposite side: the insect floats on the oil, and so can be got away. Small particles may be shaken out of the ear by causing the patient to lean his head over on the side in which the foreign body is lodged, and sharply tapping the *opposite* side. Under no circumstances whatever must any attempt be made to remove anything from the ear by means of hair-pins, knife-blades, pins, knitting-needles, or pieces of wire, etc., as *deafness* will likely enough be the result—and perhaps even *death*. If you are unable to achieve your object by the simple means indicated, it is your duty to at once consult your medical attendant.

Nose.—Foreign bodies in the nose may be got rid of by causing the patient to sneeze by means of snuff, or by getting him to blow his nose hard at the same time that pressure is applied to the side of the nose in which the passage is clear.