

First help in accidents and in sickness : a guide in the absence, or before the arrival, of medical assistance : published with the recommendation of the highest medical authority.

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FIRST AID

OR

ACCIDENTS AND IN SICKNESS

A GUIDE

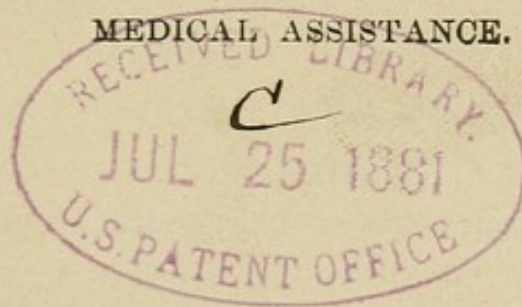
FOR THE USE OF THE YOUNG MEN OF THE
ARMY AND NAVY

BY THE AUTHOR OF THE "FIRST AID"
AND "FIRST AID TO THE SICK"

FIRST HELP
IN
ACCIDENTS AND IN SICKNESS.

A GUIDE

IN THE ABSENCE, OR BEFORE THE ARRIVAL, OF
MEDICAL ASSISTANCE.

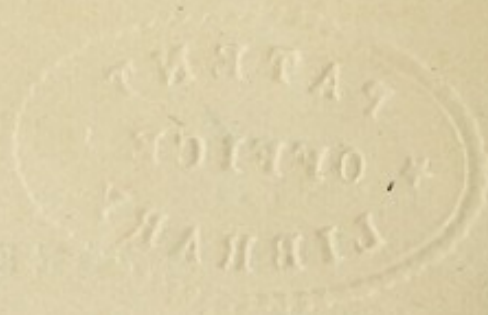


*PUBLISHED WITH THE RECOMMENDATION OF
THE HIGHEST MEDICAL AUTHORITY.*

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PUBLISHER'S PREFACE.

THIS volume has been prepared with a view to meet a very great and long-felt want of the Public — a reliable, popular, comprehensive and practical digest of scientific medical knowledge, so far as relates to *that aid* which may properly be rendered in cases of accident and sickness, in the absence of a physician.

Most of the popular works on medical subjects now before the public, while perhaps containing many useful things, are, in general, the offsprings of quackery, and contain a large amount of matter that is not only wholly unreliable, but absolutely unsafe to follow.

A part of this volume has been carefully compiled from trustworthy sources; much of it written by eminent physicians, and the whole arranged and prepared for the press, by the editors of GOOD HEALTH. It is presented to the public in the full confidence that the instructions which it gives, and the suggestions it offers, will be found an invaluable aid to all who study and consult its pages.

OFFICE OF "GOOD HEALTH" MAGAZINE.

BOSTON, September 15, 18.

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FIRST HELP IN ACCIDENTS.

CHAPTER I.

GENERAL OBSERVATIONS.

IN the present age, practical utility is everything. The mechanism of a steam-engine is thought worthy of the study and admiration of men who have no direct concern in its applications.

But what are the wonders of the most intricate machinery, compared with those of a living man? Apart from life, even as a machine, he would be wonderful. There is, indeed, in man, something of the *infinite*, yet the faculties by which he can contemplate himself are but *finite*. We can, therefore, know even ourselves but in part, and this partial view we obtain only by *reflected* light.

Just as we see our natural face only by reflection in a mirror, so, to understand anything of ourselves, we must "hold the mirror up to nature"; and it is often in a figure or allegory that we obtain the most lively conception of what we are.

The human body, with its many members, its well-compacted joints, its varied offices and parts, mutually

interdependent, has been ever the standing type of a body politic, such as it should be. Let us for a moment look at ourselves under this figure. Beginning at the seat of government, the head: here we find, as in a secure palace, the sovereign mind enthroned; the will, the highest executive authority, ordering and controlling every action. Around are waiting the several ministers, the senses, whose office it is to report continually all that concerns the weal of the state. To this centre of intelligence information is conveyed, and from it, commands issued to the most distant points, and this is effected by a system of *telegraphic lines* — these are the *nerves*, distributed to every part of the frame, and all connected either directly or indirectly with the brain. If a wire be divided at any point, telegraphic communication is cut off; the same result takes place if the galvanic machine at the centre is out of order. So it is in the body; a nerve divided, or a disorder in the brain, will alike produce paralysis.

Here, also, in this seat of government are the law courts, where the pleadings are carried on for the true and the false side. Reason and passion urge their claims with the zeal of the well-paid advocate, while judgment and conscience are our jury and our judge.

In a great city we require *ventilators*, which we have to a certain extent in our parks, squares, and all open spaces: these answer to the lungs of the human body; but as in our city we need *more lung*, so in the human frame we often need *more exercise* of the lungs we have; for the office in both cases is the same — it is the double one of carrying off into space what is needful to be expelled from our system, and of intro-

ducing a chief element of *vitality*, through the agency of pure air.

To our city we convey from every quarter supplies both liquid and solid; and our streets, with their constantly-rolling traffic and water-pipes combined, form no inapt representation of our lacteal vessels, veins, and arteries, by which the necessary materials are conveyed to and fro in the circulation, and, as it were, "*laid on*," or brought to our door, in every remote corner.

If our supplies fall short of our waste, we begin to feel the effects of famine; and if they much exceed it, a *glut* is the very unpleasant consequence, both to the natural and civic body.

An admirable system of drainage we have in our human frame: it is, as the case requires, a double system, one by the *skin*, in which it is computed "twenty-eight miles of drain-pipes" are laid (so numerous are these, though each is short), and another through well-known channels, carrying useless matters away in the most convenient, that is, the lowest, direction.

The combined force and skill, the exercise of power guided by intelligence, which we have in our *workers*, whether of high or low class, are represented by the *hands*, which, guided by the intelligence of the brain, are the executors of power; while our *feet*, which carry us from place to place on missions of utility, have their counterpart in the *commerce*, with its organized locomotion, which *in* our city runs to and fro, and *from* our city carries us to the ends of the earth, to lay them under contribution to our enterprise.

Under this figure, then, we have a glimpse of the

human economy in one of its many aspects; but, dropping the figure, let us for a moment regard it in another view.

If we take a portion of the flesh of man, and examine it chemically, we find it to consist principally of four elements which are found commonly in the things which surround us in this world. These four elements are called the organic elements, because they are universally found present in plants and animals, which are also called organic beings, on account of the organs they possess, by means of which they carry on their life. The names given to these four elements are Carbon, Hydrogen, Oxygen, and Nitrogen.

Of these four, carbon is the only one that is solid at the ordinary temperatures of our atmosphere. In its impure forms we know this substance by the names of charcoal and coal, but in one of its purest forms it constitutes the diamond, which is the most precious of all gems. If a portion of a plant or an animal is exposed to a slow heat, the other elements are driven off, and the carbon in the form of charcoal is left.

Carbon is easily burned in the air, and by its means heat is obtained from coals, candles, gas, and other substances in which it is contained. Carbon, when it combines with oxygen gas, forms a gas called carbonic acid, which is constantly being thrown off from the lungs of animals. It is a very poisonous gas, and when retained in the blood destroys life, and when allowed to accumulate in the atmosphere is injurious to life. A human body weighing 154 pounds, contains twenty-one pounds of carbon.

Hydrogen, the next element, is a gas. It is the lightest body known in nature. It unites with carbon,

and forms the gas which is burned to light our streets and houses. Like carbon, hydrogen is very inflammable, and burns in the air with a flame. The flames of a coal fire, and the burning jets of gas, are due to hydrogen. When hydrogen burns in the air, it unites with the oxygen in the air, and the vapor of water is formed. All water is composed of the two gases, hydrogen and oxygen. Hydrogen and carbon are contained in human food, and, coming in contact with the oxygen of the air held in the blood, they are consumed, and are the great agents by which the heat of the body is maintained. In a human body weighing 154 pounds, there are fourteen pounds of hydrogen.

The third organic element is oxygen. It is a gas, and one of the most active elements in nature. It unites with other elements, and causes them to burn. It unites with carbon, and forms carbonic acid, and with hydrogen, and forms water. It is one of the gases that enters into the composition of the atmosphere, and exists in the proportion of twenty-one parts in every hundred. It enters largely into all compounds in the human system; and a body weighing 154 pounds, contains 111 pounds of oxygen. A more active form of it, called *ozone*, is found in pure atmospheric air.

Nitrogen, the fourth of these universal elements, is by itself far less active as a chemical agent than the other three. It is found in less quantities in the human system; and a body weighing 154 pounds, contains but about three pounds and a half of nitrogen gas. It is, nevertheless, a very important element, as it enters into the composition of those organs, as the muscles and nerves, which are most important to life.

When combined with other matters it may give rise to very violent chemical action. Nitrogen is an abundant element in nature, as it makes up with oxygen the bulk of the air of the atmosphere. A hundred parts of atmospheric air contain seventy-nine parts of nitrogen.

Besides these organic elements, a human body weighing 154 pounds, contains four pounds of other elements. These consist principally of the metals, calcium, sodium, potassium, and iron; and the non-metallic elements, sulphur, phosphorus, and chlorine. These elements, though forming so small a proportion of the composition of the whole body, are, nevertheless, essential to life. For example, the bones are composed in equal parts of an animal and earthy matter, the latter consisting chiefly of the two elements, phosphorus and calcium. In the human body of the weight above stated, there are one pound twelve ounces of phosphorus, and two pounds of calcium. Calcium is the metal of which the earth lime is an oxide.

The elements above mentioned are not found pure in the human body, but are united together, forming a number of compounds, out of which the various organs are formed. The compounds thus produced are very numerous, but the principal are water, gelatine, albumen and fat. A body weighing 154 pounds, contains 111 pounds of water, fifteen pounds of gelatine, four pounds and a quarter of albumen, about the same quantity of fibrin, and twelve pounds of fat.

Water is a most important constituent of both plants and animals. It seems as if all organic beings were so much organized water. In the vegetable

kingdom sea-weeds and water-plants are often found to consist of much more than half their bulk of water. Naturalists tell us of jelly fishes that contained not more than ten grains of solid matter to one pint of water. All the food of the higher animals is dissolved in water before it is appropriated to the use of their bodies, whilst many of the lower animals pass their entire existence in water. Just as the human body is composed of large quantities of water, so is it necessary that the food of man should contain a large proportion of water.

All animal bodies are composed in great measure of minute ultimate parts, which are called *cells*, and of a substance in which these cells lie. These cells are little vesicles or bladders, two or three thousand of which do not measure more than an inch; the walls of these little sacs, and the substance between them, are composed of a jelly-like body, which is either an albumen or a gelatine — in bone and membranes we find *gelatine*, properly so called. This substance is made up of all four of the organic elements, and is insoluble in cold, but soluble in hot water. When any portion of an animal is boiled in water, the gelatines are dissolved. When the water containing gelatine is allowed to cool, it becomes more or less solid, and forms what is called a *jelly*. Gelatine is more abundant in the skin and bones than any other part of the animal body. A coarser form of *gelatine* is obtained from the skin of animals, and is called *glue*. Gelatine forms an insoluble substance with tannin, which is found in oak bark; and the skins of animals submitted to the action of a so-

lution of tannin are converted into what is called *leather*.

Albumens, like gelatine, contain all the organic elements, and constitute the principal part of the muscles and nerves of animal bodies. Albumens differ from gelatines in becoming more readily decomposed after death. They are more closely connected with life. One sort of albumen is found in the muscles, and another in the nerves. Albumens are also found in the products of plants. Gluten is found in wheat-flour, in barley, oats, and maize. Other kinds of albumen are found in smaller quantities in the same things, and are present in the blood of animals. Albumen constitutes that part of the egg which is known as the "white."

Fat is a most important constituent of all animals. Everywhere in the body of animals fatty matter is found under the skin and between the muscles. Fat differs from the three last compounds in containing no nitrogen, and but little oxygen. Although not directly aiding the functions of life, it contributes to many of its secondary functions, and is essential to the proper structure of all animal bodies. Fat, consisting almost entirely of carbon and hydrogen, is a substance readily burned. From the fat of animals, candles are made; and it appears that in cold weather animals burn, as it were, the fat of their own bodies. Most animals get fat in the summer, and become thin in the winter, from consuming their own fat in the process of making their bodies warm. This is remarkably the case with animals which hibernate, which enter upon their winter-sleep quite sleek and fat, but wake up in the spring meagre and thin.

Besides these compounds, there are a great many others found in animal and human bodies. The food which they take whilst subserving the purposes of life is transformed into compounds which appear in the blood, the liver, the spleen, the kidneys, and the various glands of the human body. They indicate that, during the performance of the functions of life, a vast number of chemical changes go on in the body, which are essential to its health and well-being.

The time is, we trust, not far distant when the study of physiology as applied to the preservation of personal health, and of surgery so far as it may be necessary for the immediate treatment of minor casualties, will enter into the curriculum of ordinary education, and fill up some hours which are now devoted to far less important objects.

The conditions of health and life, so dear to every one, would be better understood and recognized, and the whole community would directly benefit by the extension of such thoroughly useful knowledge. There is no foundation for the objections that there would be great difficulty in imparting the required information, or that much time would be occupied in communicating it.

In order successfully to meet the various requirements of a case of accidental injury or of sudden seizure, it is imperative that the helper bring, to aid him in the task, the two conditions of *coolness* and *presence of mind*. It may be at once conceded that all do not in a like degree possess these qualities; but it is none the less thoroughly true that, existing, it may be, only in a minor degree, they may by the majority of persons be successfully cultivated and devel-

oped. If the bystander be flurried and uncertain, he will but increase the misery he so much desires to remedy, and his services, dictated by the best motives, will have lost much of their value. Thought and will must be concentrated on the work before him; the patient in his own special individuality must be lost sight of, and the hurt, whatever it may be, must receive the fullest and closest consideration. Deep and thorough sympathy with the fellow-creature is quite compatible with an apparent neglect of the feelings of the sufferer; and an indifference to querulous complaint may well be pardoned, when the whole attention is absorbed by the tending of some positive damage. Quietly, calmly, and thoroughly must the necessary inquiries be made, and the appropriate treatment carried out. A course of action once determined on should not be deviated from, either in misplaced pity for the injured person, or in deference to the objections of some less clear-headed looker-on.

In the immediate treatment of some one who may have met with severe local injury, the following rules may be laid down without hesitation in general terms:—

1. Ascertain at once the history and the place of injury, and this by a few terse, clear questions.

(a) From the patient himself, if he be sensible and able to speak;

(b) From the bystanders,—if any were near: make out what they have seen, what they know, but on no account waste time in listening to details unconnected with and irrelevant to the point at issue.

2. If the patient be insensible, place him on the

ground or floor, lying rather over to or directly on one side, and with the head slightly raised, so that it be placed on the same level with the rest of the body; this will tend to his breathing more easily than if he be placed flat on the back. Then remove necktie, collar, etc., and unbutton or split open any clothing pressing tightly upon the neck, chest, or abdomen.

3. As a restorative, the face and chest may be sprinkled with cold water, and then wiped dry; some cold water may be drunk if the power of swallowing be present; but do not hastily pour stimulants down the throat, unless there be clear evidence that they are needed.

4. Nor, acting on the opposite principle, allow some officious individual to bleed, in the view of preventing inflammation, a man whose danger lies, for the present at least, far more in the shock of the injury, and in impending collapse.

5. Examine one by one the limbs, — their prominent parts you may examine by touch and grasping, with very little movement of the whole frame; if there be bleeding, note from whence it comes, and look to any change of outline, swelling, etc., in the extremities.

6. If there be distinct local injury, let it be treated on the ordinary plans, and with such appliances as you have at hand. Having seen to this,

7. Then attend to the removing of the patient. On no account, if there be severe injury to head, or any part of frame, allow him to mount a horse, or to sit upright in a vehicle, but let him lie down as thoroughly as possible. Walking, also, should be avoided on the same grounds.

8. Insist on the patient's lying down when he has reached some place of shelter, and on thorough quiet, at least for a time.

9. If you have persons to send for medical aid and appliances, make use of them at once; but remember that your directions and messages cannot possibly be too clear, too short, or too simple. A written message is of far more value than one sent by word of mouth, especially to the surgeon.

10. Have no useless talking to or in the hearing of the sufferer; and when he is fairly housed, banish from his room without mercy all except those necessary for his comfort and attendance; let these, too, be as few in number as the circumstances will allow.

In all cases of other than very slight injuries, surgical aid should be procured as speedily as possible. The directions here given are by no means intended to supersede the resorting to educated skill. They may be acted on until the surgeon shall arrive; or, if due professional aid cannot be obtained, then the injury must continue to be treated on the principles here sketched out.

CHAPTER II.

ARTICLES FOR IMMEDIATE AND SUBSEQUENT DRESSING, ETC.

THE articles necessary for the immediate dressing of wounds are not very numerous, nor are they, under ordinary conditions, difficult to meet with.

1. *Water* will be necessary, — most frequently it will be needed almost, if not quite, cold; or, if more grateful to the patient, it may be used lukewarm.

2. *Sponges* are a very great convenience; they should not be so large as to be unwieldy, nor should they be loose in fibre, but rather small in size, of close texture, yet perfectly soft. All extraneous matter should have been washed out of them — such as bits of sea-sand, shells, etc. — and the sponges should be well scalded with boiling water before they are used. If the sponges have been used for cleansing unhealthy sores, or for the application of medicated lotions, it is far the best that they should be destroyed when their use is at an end. There are many cases on record where it would seem that sponges have conveyed noxious matters from one patient to another.

3. *Flannel* will be the best material to use for the cleaning of a wound in the absence of sponge; it should not have been used for other purposes.

4. *Lint* is the material of its kind best adapted for surgical purposes. If it be not at hand, *soft cambric* or *lawn*, *e. g.*, a well-worn pocket-handkerchief, may be used in its place.

5. *Oil-silk*, *thin gutta-percha tissue*, or *oiled paper*, have their uses in keeping moist pieces of lint, linen, etc., which may have been wetted with water and applied to the injured part; the tissue being cut in all its measurements a little larger than the piece of lint upon which it is placed.

6. *Plasters*. These exist in great variety of form: of all the ordinary adhesive plasters, diachylon plaster is perhaps the most useful; though isinglass and court-plasters have their advantages. They are used in strips more or less broad, but the narrower the better, and long according to exigency; and that the adhesive material should be thoroughly softened by exposure to steam of boiling water, or to a fire before the strip is applied. A convenient mode of softening plaster is to pour into a basin, cup, or tin, some boiling water; then to the outside of this vessel apply the reverse side of the strip just before the attendant wishes to make use of it.

7. *Pieces of linen*, cravats, or pocket-handkerchiefs. These should be used only when thoroughly clean, and will readily assume the form of pads or *compresses* — folded more or less compactly and into shape as the case may require — they may be applied upon or at the side of wounded parts. As *bandages* or *supports*, they may be used to encircle a limb, to retain dressings upon it, etc., and may be systematically described as used in form of the oblong or square, the triangle, the cravat, and the cord. These titles sufficiently describe

the various purposes to which they may be applied, and the requisite mode of folding. Two or three ordinary full-sized pocket-handkerchiefs will be sufficient for the immediate dressing of most injuries. Lastly, in the form of *slings*, similar pieces of stuff may be employed to support an injured arm or hand.

The material, whether silk, cotton, or linen, is of secondary importance; and, therefore, if cravats or pocket-handkerchiefs be not at hand in sufficient number, strips, or pieces of the proper size, may be obtained from almost any part of the underclothing now worn by either sex.

8. *Splints* are specially needed in cases of fracture. They should be of tolerably firm material, adapted in a measure to the shape and contour of the injured limb, and may be fastened on, at all events for a time, by the cravat-bandages just named. It is best as a rule that they should be made of pieces of *wood*, cut by a saw to the required width and length, and of such thickness as to afford support without being unnecessarily cumbrous and heavy. In the absence of wood, very efficient splints may be made of wheat-straw cut to the required length, and taken up in such quantity that the due strength is obtained. Pieces of bark will answer admirably. If the accident has happened near to a house, there will be little trouble in procuring some pieces of pasteboard, a hat, or a bonnet-box, which may be sacrificed for the required end. Metal may occasionally be found in the shape required, *e. g.*, zinc tube or spouting, which may be split with a knife into separate slips; these should be several in number, three or four inches in width, while the length must be regulated by the special circumstances of each case.

9. *Bandages* or *rollers* can hardly be spoken of as necessary in the very first treatment of local injuries; but if the treatment should remain in the hands of the non-professional from the impossibility of obtaining duly skilled advice, their employment will be found a very great convenience. They are merely strips of calico or linen of fairly strong make, of about three fingers' breadth, and in length from three to six yards. The latter length should not be exceeded, as the roll becomes inconveniently bulky for the hand.

The piece of material should first have been washed, to get rid of the glaze and stiffening with which it is got up for sale, — the selvage removed, and then the bandages torn off throughout their whole length from one piece, so that there be no cross ridges from the joining of short lengths together. Then each bandage should be rolled up tightly and firmly on itself, the further end being held during the process, or tied to some immovable object.

A roller should be put on a limb from its extremity upwards, no part being skipped or left uncovered by the bandage, or swelling of such part will very probably occur, and the roller, too, will become loosened, and easily detached.

As limbs, too, are not uniform in bulk, but increase from below upwards, or from the terminal part to their junction with the trunk, so merely winding the roller round the limb will not answer — it must be put on *spirally*; each layer must cover over half of the preceding layer, and where sudden increase in bulk takes place, the roller must, once in each encircling of the limb, be turned half down upon itself, so that an accurate fitting may be secured. At the angles formed

by the joints, the figure of eight must be formed by the roller, the loops of this figure being applied, one round the limb above, the other below the joint; so leaving, in case of the knee and ankle, the knee-pan and the heel respectively, without a covering of bandage.

It is impossible, in writing, to make thoroughly clear the mode of applying a roller, — the knack, for such it is, can only be acquired by watching the process, and by frequently practising it either on some volunteer friend, or on a plaster model of a limb.

The following has reference to the secondary treatment of surgical cases in those instances where the coming of a qualified surgeon is long delayed, or where there is no chance of obtaining such skilled services. The forms in which the two great agents, cold and heat, can best be employed, will be here sketched: the cases in which one or the other must be resorted to, will be hereafter mentioned.

Increased heat in a part is one of the indications of inflammation having set in; and, for the purpose of diminishing this abnormal heat, *cold applications* are of much service. They may be used in form of —

1. *Evaporating Lotions*. — A single piece, one thickness, of linen, should be dipped in the liquid and laid on the injured part; but no other covering is to be allowed over this. To secure evaporation, free access of external air is imperative, and the injured part should therefore be fully exposed, even though other parts of the same limb may need warm covering, flannel, etc. As the linen dries (and it may do so very rapidly), it must be wetted either by removing it and saturating it afresh with the lotion, or by filling a

sponge with the lotion and squeezing it over the undisturbed linen covering. Cold water, reduced in temperature by dropping a piece of ice into the can, may be used in this mode; or medicated lotions, such as the following: two ounces of spirits of wine, or three ounces of brandy to a pint of cold water.

2. *Ice in Bladder or India-rubber Bag.* — Ice roughly pounded and put into a bladder, and this applied to the part, will furnish an intense degree of cold. In the use of this, the sensations of the patient should be consulted. Thus, if shivering and discomfort follow upon the application of ice or other cold application, and this shivering be not merely a temporary, but a lasting or recurring symptom, the cold should be discontinued. Should pain in and around the part come on, increased by each fresh supply of cold-producing material, this would furnish an immediate reason for change of dressing; and, lastly, change of color to an intense paleness after a dark red, or even blue appearance, would demand the immediate, though very gradual, heightening of temperature in the application.

3. *Irrigation.* — This mode, as it is most easily regulated, will probably be found, after all, the most satisfactory. Place the patient on a bedstead with the damaged part exposed; beneath it stretch a piece of oil-cloth, table-cover, or waterproof material, so arranged that water dripping on it shall be conducted off the bed into some convenient receptacle. Suspend from a part of the framework of a venerable four-poster, from a stand purposely contrived, or from some hook placed in the ceiling, a can containing cold water — ice in this, if necessary — so that it shall hang al-

most directly over that part to which cold is to be applied. The necessary continuous dripping may then be managed by hanging over the edge of the can a few threads of cotton, or a thin slip of lint, first well soaked, so that drop by drop the can may be emptied by capillary attraction, each drop falling on the part beneath. A special stand may be constructed for the purpose. The rapidity and force of the dripping will be well under control, and the exact point on which it falls can also be varied from time to time.

4. *Immersion.* — This will, as a rule, only be possible for some injury to one or other of the extremities, and but for a limited time.

Under certain conditions — such, for instance, as severe pain, collection of pus, etc., etc. — the *local application of heat* will prove of material advantage.

1. As *dry heat*, the application may be secured by the employment of small, well-stitched flannel bags, which have previously been filled with camomile-flowers, hops, with bran, or with sand. So filled, the bag should be heated by exposure to the fire, or by placing it in a well-warmed oven, and then applied to that part which may be the seat of pain. When it is cooling, another bag, treated in the same way, should be substituted for the first one, and the required degree of heat should thus be kept up by a constant interchange.

2. As *moist heat*, in a minor degree, the use of *warm-water dressing* will answer the purpose. This will consist in the use of a double fold of lint or soft linen, well soaked in warm water, and applied to the part; while over this a covering of impermeable ma-

terial, oiled silk, gutta-percha tissue, slightly larger than the lint, is carefully adapted.

3. *Moist heat to a greater amount* may be obtained by the employment of—

(a) *Fomentations*.—These are best managed by having some pieces of flannel, or blanket, first cut to the required size, and thoroughly soaked in water, just so hot as to be grateful to the patient. The nurse's hand is no fair thermometer: what is pleasant to her case-hardened cuticle will often prove scalding to the patient. Place beneath the part to be fomented some waterproof or oil-cloth, and then having had the flannels wrung nearly dry in a towel twisted by two people, wrap them round the limb, or apply them flat on the injured part, and then over the flannels some waterproof or thoroughly dry and thick covering, repeating the whole process as often as may be necessary.

(b) *Direct Immersion* may be practised when the foot or hand needs continuous application of heat, by placing the member in a shallow bath filled with water at the required temperature.

(c) *Poultices* may be made either of bread, or of linseed meal; whichever material be employed, it should be so combined with boiling water as to form a soft, uniform, pulpy mass, free from lumps or foreign substances. So made, the mass should be spread, of moderate thickness, on linen or calico twice folded, and then applied to the part in pain. If linseed meal be preferred, as the more stimulating application of the two, or as more available for the purpose of hastening the process of suppuration, it is well to add a small quantity of hog's lard, so covering the whole surface of the poultice mass with a thin layer of melted fat.

Poultices should be changed more or less frequently, according to the special requirements of each case — never allowed to remain on the part affected after they have parted with the contained heat; for then they soon become cold, clammy, and unpleasant.

Mustard Plaster or Poultice is a ready and efficient mode of producing a temporary counter-irritation, and is frequently of much service. It is an application which can only be used to an unbroken surface of skin — the existence of superficial tear or abrasion of the cuticle forbids its employment. The mustard, in fine powder, should be mixed with boiling water to just such a consistence as if it were required for the dinner-table, and then the paste may at once be spread in moderate thickness either on a piece of leather, calico, or brown paper. On the face of the mustard, when spread, lay a piece of muslin or gauze, and let this be placed in close contact with the skin; by means of the muslin, the whole may be easily removed after from ten to twenty minutes' application, or such length of time as may be necessary to redden the skin thoroughly. The surface should then be well washed with a soft sponge, so as to get rid of any adherent fraction of the mustard.

As a subsequent dressing, a cambric handkerchief placed dry on the part, or, if it be preferred, moistened with oil or with some simple ointment, will give most relief; the smarting and redness pass off in a few hours.

Leeches are employed not unfrequently in the subsequent treatment of surgical cases, and so claim a passing mention. When it is deemed well to apply them, fresh leeches, or those which have not been re-

cently in use, should certainly be chosen: the part to which they are to be applied cannot be too scrupulously cleaned, for the odor of perspiration, scents, etc., will prevent their taking hold; a small quantity of cream may be smeared lightly on the exact spot, and then the leeches applied, either *en masse*, by placing them in a wine-glass and inverting it over the part, or singly, so as to secure more accurate choice of situation. In the latter case, they may be applied by means of a leech-glass, or by taking them up one by one in the hand, covered with a towel, and so holding them to the point desired.

When fairly applied, leeches should be left to themselves; when gorged with blood, they will drop off. If it is desired to increase the loss of blood, warm fomentations may be employed, and the flannels be removed frequently, or a bread poultice may be used in preference, changing it as it becomes cool. The arrest of bleeding from the bites will be secured usually without trouble, by the exposure of the part to the air by cold applications, or pressure with the finger.

STIMULANTS.

Stimulants are agents of much value in the treatment of that condition of collapse and faintness which very commonly occurs after some physical injuries. The symptoms may be briefly sketched: The face is pale, bedewed with cold or clammy perspiration; the surface of body generally cold; the pulse flickering, perhaps hardly perceptible; the patient complains of the feeling of faintness, and may have nausea, or even

actual sickness; the breathing is sighing and irregular, and for a time there may be actual insensibility.

Now, under such conditions, there can be no question as to the propriety of inducing reaction by the administration of stimulants.

Coffee, given hot and strong, and in small quantity, is a safe and useful remedy.

Alcohol is more potent in its effects, and the good effect is produced more speedily. Brandy is the best spirit, given in more or less diluted form; failing this, rum or wine may be given. The best practical rule is to give a small quantity at first, and watch its effect; if the surface becomes warmer, the breathing deeper and more regular, and the pulse at the wrist more perceptible, then there can be no question as to the advantage of giving even a little more; but if these signs of improvement are wanting—if there be increase of insensibility and deepening of color about the face with access of heat of skin— withhold alcohol entirely; it will but add to the mischief.

There can be no guide as to the quantity necessary; the effect is the only indication. If much blood has been lost, and the faintness be extreme, stimulants may be freely used, combining with their use thorough rest in the horizontal posture, and free access of air; but if there be no loss of blood, and nervous shock be alone the cause of the condition, the stimulant should be given cautiously, little by little, as it may seem advisable—not in any single large dose.

When reaction, marked by return of color to the face, and warm perspiration, has once fairly set in, the use of any stimulant should be discontinued.

CHAPTER III.

BRUISES, CONTUSIONS, ETC.

THESE will vary from a slight condition of local injury to a very severe crushing. They result either upon a fall from some height, or are caused by a weight falling upon some part of the body. The local changes are not to be mistaken. There will not be wound of the skin, but swelling appears within a greater or less time, with dark blue discoloration; the latter depending on the rupture of small vessels beneath the skin by the force of the blow. The swelling may be even very great, and the distension of the skin will so give rise to much pain.

The two necessary points of treatment are to afford moisture to the part bruised, and to insist on thorough rest. When the bruise is not of a serious character, a thin piece of raw meat may be bound on the part, which will remove the discoloration sooner than almost anything else. But it will usually be most grateful to the patient to have warm applications, a large bread poultice, or hot fomentations, by frequently renewed flannels; these soften the skin and relieve the pain. But in some cases, cold water is most refreshing. A lotion of arnica may be employed —

Tincture of arnica, 1 part.
Water, from 5 to 8 parts.

This, by some surgeons, is thought to be of much good in relieving pain, and also in promoting the absorption of the blood poured out.

It may be that the pain continues in spite of these means, and if so, the application of leeches in good number, twenty to thirty if a limb be much injured, may give much relief. The subsequent bleeding may be increased and encouraged by the employment of large bread poultices or hot flannels.

For some days the patient must keep quite at rest. The change of color in the injured part from black, through many varieties of shades, to a dingy yellow, is due to alteration in the effused blood, and should be looked on as a necessary condition, and also as an indication of slow recovery.

If the injury be to the head, and of such severity as to *stun* the person injured, place the patient in a sitting position, supported and moderately inclined, and endeavor to restore a reaction by every available means at hand—the inhaling of pungent salts or any strong scent, the more nauseating the better; apply irritants to the extremities, such as mustard to the wrists and ankles, and hot lotions; and at the same time apply cold water to the head, and strictly avoid giving spirits of any kind. When necessary to move the patient, let it be done as gently as possible.

These rules of treatment will only apply to the less severe instances of contusion. Where the weight has been very great, and the resulting injury very severe, it is not possible that it can be dealt with satisfactorily,

except by medical knowledge. All that can be done is to support the injured part, especially during removal. Apply cold water dressing and cravat bandage, obtaining the requisite help as soon as possible.

BURNS AND SCALDS.

These injuries, the consequence respectively of contact of fire and boiling compounds with the structures of the human frame, have so much of similarity in their appearance, and in the treatment required, that they may be mentioned here under the same head.

Three different degrees of burning or scalding have been accepted by systematic writers:—

1. When the contact has been but for a very short time, and the injury is that of redness and inflammation of the skin with coincident severe pain.

2. Where blisters have formed, from a greater amount of heat being applied.

3. When there is destruction of skin and the underlying structures, they are changed into a yellow or black mass, and all vitality is destroyed; the damaged parts separate as sloughs, leaving large gaps to be filled up by granulation.

The amount of pain will vary much in different cases. On the whole, its presence, if it be not of unbearable severity, is rather of good omen than otherwise; the absence of suffering must be taken, in extensive burns and scalds, to indicate extreme and imminent danger.

Much of the probable result will depend on the part injured, and the extent of surface which has been

implicated. Thus severe burns about the chest and abdomen, particularly in children, are almost always fatal; those, too, of the lower extremities are more dangerous than the same injuries affecting the face, neck, and arms.

THE TREATMENT OF BURNS.

First put out the blaze, if the clothes have caught fire. Do not on any account let the sufferer run about, — every draught of air will fan the flame; but throw him at once on the floor, and wrap him up in folds of carpet, hearth-rug, curtains, table-cloths, etc.; or if the person can only think of the plan, he may well roll himself over and over on the floor until the flames are mechanically put out. Then let the patient be taken to bed, and if there be much shock to the system, with faintness or prostration, some hot coffee or stimulants should at once be given.

Next remove the clothes. Do not attempt to *pull* or *drag* them off. The quickest, safest, and most economical method is, carefully to *cut them away from the injured parts*, using for this purpose a very sharp knife, or a pair of scissors. If the skin should adhere to some part of the under-dress, cut the dress, but be careful not to tear through or injure the skin where blisters have formed.

The keeping of the air away is the main point to be looked to in the dressing, and this end may be attained by using—

Dry applications, — such as flour liberally shaken on from a common flour-dredger, or finely powdered

starch, cotton-wool, or wadding in sheets, as used for ladies' dresses, only taking care to use the covering so freely that the air shall be well excluded.

Moist applications are best used warm,—more grateful to the patient than if they are applied perfectly cold.

The carron oil—a mixture of lime-water and linseed oil in equal parts—may be freely used, and over this layers of cotton-wool; or the parts may be well covered with *castor-oil*; or a paste may be made of powdered chalk and lard, spread half an inch thick on suitable cloths, and applied to the parts, covered with an outer bandage, and be allowed to remain on for two or three days; or the parts may be brushed with turpentine, and then covered with a mixture of equal parts of turpentine and resin ointment, spread on linen or wadding.

Again, the part may be first painted over with oil, and on this surface flour be dredged. It will adhere more closely than if flour alone be used. Scraped potatoes are easily obtained, also.

If none of the foregoing applications are available, take hot water and milk (equal parts), to which add a small teaspoonful of baking soda for every pint of the mixture used. Saturate suitable cloths with this, apply to the part, and keep covered with a dry cloth or piece of flannel, to prevent a too rapid evaporation, and to exclude the air. If there is no milk at hand, use the warm water, with plenty of common soap, to make a strong suds; or if there is no soap at hand, add a teaspoonful of baking soda, or half the quantity of washing soda, to each pint of warm water, and apply as above.

The use of applications which are WARM AND STIMULATING is always to be preferred to the employment of cold and simply soothing compounds. The first dressing should remain undisturbed at least for twenty-four hours, or longer, and then be repeated in the same or in a modified form; the subsequent treatment may be by using calamine ointment, water-dressing, or poultices; but so many casualties are attendant upon the after treatment of severe burns, that medical aid should be obtained without any delay. Where much surface skin is destroyed, death may occur from congestion or inflammation of internal organs, or from effusion within the cavity of the skull. At a later period, death most frequently follows from the wearing out of physical strength, by the long continuance of exhausting discharges, etc.

It will be well to name, that in the event of lime getting on the front of the eye or under the eyelids, water should *not* be employed. Washing with vinegar will neutralize the caustic properties of the lime, and any fractional bits may afterwards be removed by the use of a feather lightly applied, by a camel-hair pencil lightly used, or by a fold of linen screwed to a point. Acute inflammation of the eye must be looked for after such an accident, and though even with immediate medical aid the organ may be much damaged, without it, sight will be almost certainly sacrificed.

The local application of leeches around the lids, and frequent use of warm fomentations, constitute all that can be safely done by non-professional hands.

Chemical agents sometimes come in contact with the skin.

Acids, as oil of vitrol, aquafortis, etc.; an alka-

line solution should at once be applied,— carbonate of soda or magnesia dissolved in water, or lime-water; in the absence of these remedies, common soap made into a thick lather with soft water; olive oil may afterwards be used freely, and the ulcers which may remain must be treated on general principles.

Alkalies,—as quicklime, caustic ammonia, or potash,—need the opposite treatment; weak vinegar, or much diluted acids, should be at once applied.

Corrosive Sublimate is rendered inert by the free use of white of egg. *Butter of antimony*, by applying water in abundance. *Nitrate of silver*, unless very freely employed, will not do much local mischief. Salt and water will decompose this silver salt.

CHAPTER IV.

BLEEDING : — WHERE IT MAY COME FROM, AND HOW
TO ARREST IT.

Blood-Vessels.

THE circulation of the blood throughout the body is carried on by the heart, as the central receiving and propelling organ, and by blood-vessels connected with it. Omitting all reference to the circulation through the lungs, arranged for the purpose of oxygenating and renewing that blood which has already supplied the general tissues, it will be well to speak of blood-vessels in the two divisions of *arteries* and *veins*, the former carrying bright red arterial blood to the different parts of the body from the heart, and having a distinct pulse at each beat of the heart ; the latter carrying dull red or dark blood from the various parts of the frame back to the heart, and not possessing any distinct pulsation.

The main arteries pursue a tolerably direct course to the various limbs, and are placed, as a rule, not very near to the surface of the body ; the position they occupy is the sheltered one on the inside of each limb.

The veins run in two sets, — *superficial*, which are abundant in number, communicate freely with each

other, and run a tortuous and twisted course, — *deep*, which for the most part are side by side with the large artery, and are more direct.

An outline of the course of the main vessels will not be difficult to remember, and will be a necessary guide to the ready arrest of bleeding, be it more or less severe.

NOTICE. — In the following drawings, the *dark* vessels represent veins, and the *light* vessels arteries. The letter *a* in the drawings signifies *artery*, the *v* signifies *vein*.

1. *Blood-Vessels of the Head, Neck, and Upper Extremity.*

There is on each side of the neck a large artery (carotid), which carries blood from the chest to the neck and head. It runs in a line from the inner end of the collar-bone to the angle of the lower jaw, and the pulsation is throughout fairly evident to the finger. The *deep* jugular vein lies very nearly parallel to the artery; the *superficial* jugular vein can readily be recognized under the skin.

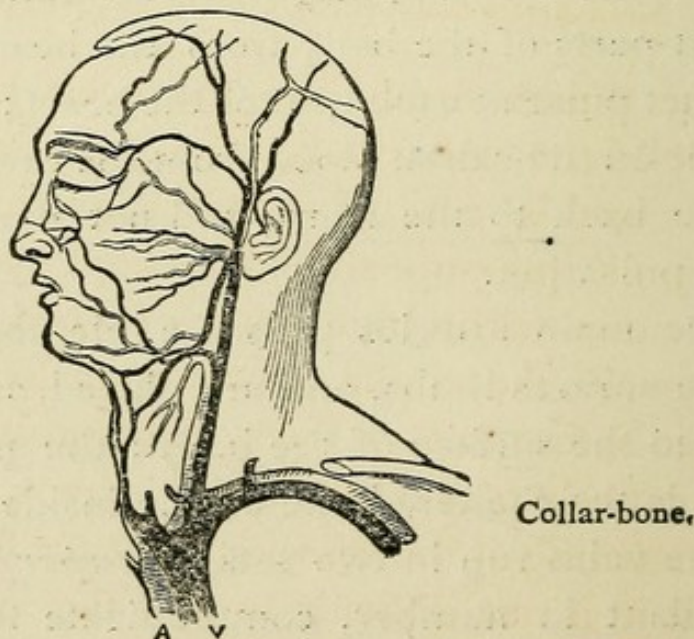


Fig. 1. Main Artery and Vein of the Neck and Head.

To arrest bleeding in a wound of this artery, or one of its branches, pressure should be employed in a direction rather inwards and backwards, so as to press the vessel against the side-projections of the vertebral column.

The great artery (subclavian) which supplies the upper extremity with blood, comes up out of the chest, and passes directly over the first rib in a direction outwards and downwards, towards the armpit. By press-

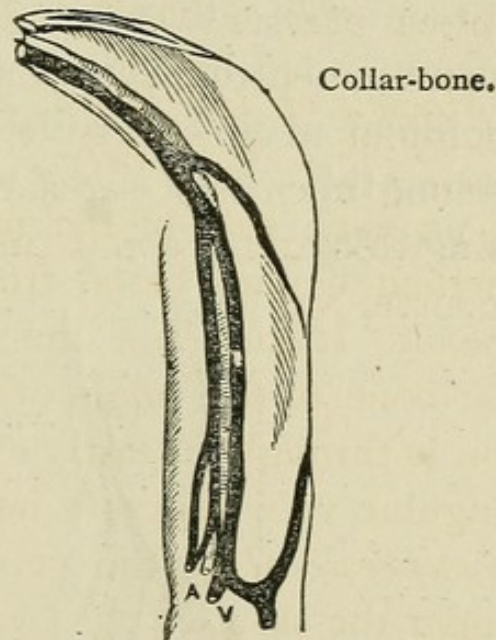


Fig. 2. Main Artery and Vein of Collar-bone, Armpit, and Upper Arm.

ing the thumb firmly into the neck, just behind the middle of the collar-bone, the pulsation may be detected; and in case of hemorrhage from, in, or near the armpit, pressure should be kept up here for some time, either with a blunt piece of wood with a rounded end, or with the handle of a common door-key wrapped in three or four folds of linen. The pressure will diminish or entirely prevent the blood current, by the mechanical flattening of the vessel against the first rib. In the armpit it is not difficult to feel the artery (axillary)

beating, by pressing the thumb or finger deeply towards the apex of the hollow, and pressure may be made by fixing the vessel between the fingers and the arm-bone at its upper part.

From this point the artery (brachial) runs onwards to the elbow, keeping always to the inside of the arm, and on the inner side of the prominent muscle of the upper arm. It is accompanied by parallel veins; throughout its course the artery is easily controlled by properly applied pressure, and, indeed, it is well for the reader to remember, that in wounds of the fore-arm or hand, accompanied by excessive arterial bleeding, the loss of blood may most satisfactorily be arrested by compressing this artery about the middle or lower third of its course.

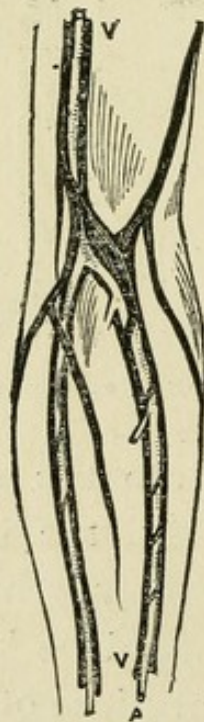


Fig. 3. Main Artery and Vein of Elbow and Fore-Arm.

Just below the bend of the arm, the main artery divides into two large branches, — one (radial) taking the line of the outer bone, the other (ulnar) lying al-

most parallel with the inner bone. Both are, in the greater part of their course, rather deeply situated, and well covered by muscles, so that the detection of their pulsation is far from easy. At the wrist-joint both vessels may be felt beating, and to them in this situation pressure can be well applied.

Certain branches pass onwards to the hand, forming arches more or less well marked, and from these, again, the fingers are supplied by straight vessels. In the event of much bleeding from the hand, the checking it may be attempted by pressure on both vessels at the wrist; if this fails, compress the main artery on the inside of the upper arm.

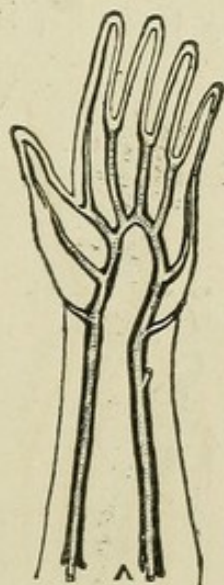


Fig. 4. Main Artery and Vein of Wrist-Joint and Hand.

The superficial veins of the upper extremity are sufficiently evident; those which occupy the flexure of the elbow should be attended to (*fig. 3*); in one of these it is usual for surgeons to perform bleeding; but no person who has not had an anatomical education should venture on the operation in this place; there is danger of puncturing the brachial artery as it passes in front of the elbow-joint.

† The large arteries and veins within the cavities of the chest and abdomen, not being amenable to the simpler surgical measures, are here omitted.

2. *The Blood-Vessels of the Lower Extremity.*

The large artery of the lower limb (femoral) passes downwards from the groin, lying about the middle of the crease of the groin, running almost at right angles to it. From this point of entrance, where its pulsation is very evident, and compression of it may be very easily managed, the vessel runs onwards, inclining to the inside, and ultimately turning half round the thigh-bone, so as to be felt quite behind it in the ham. In the upper three inches of its course the vessel can be felt with little difficulty; and if it should be wounded,



Fig. 5. Main Artery and Vein of Groin and Upper Leg.

compression at the point of injury, or at the line of entrance in the groin, will be effectual; the thumb is better in this instance than the handle of a door-key.

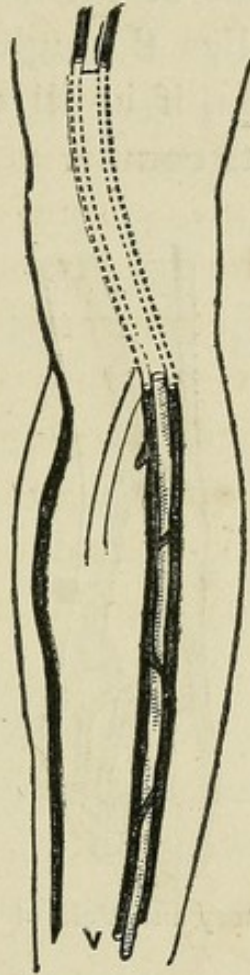


Fig. 6. Main Artery and Vein of Knee-Joint and Calves.

The large vein is internal to the artery at first, and then turns behind it.

If severe bleeding result on wound of the leg or foot, compression of the main vessel high up will be the most satisfactory plan.

As in the arm, so here, the main artery gives off two principal branches (anterior and posterior tibial), below the knee-joint; both are deeply seated, and their pulsation, except near the ankle-joint, is not easily detected: one runs in front, the other behind the limb.

The foot is supplied by smaller branches from these two arteries.

The superficial veins are much larger than in the arm, and from wounds of them much bleeding may follow. The largest lies throughout on the inside of the limb, and is visible, if at all enlarged, throughout the whole length of its course.

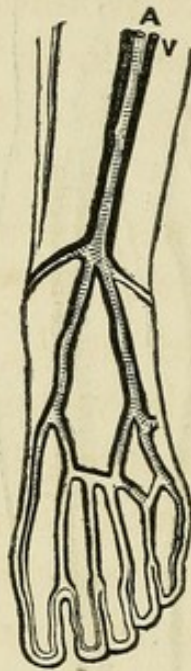


Fig. 7. Main Artery and Vein of Ankle and Foot.

A knowledge of the course of the principal blood-vessels may be obtained by a little practice in seeking out their course on the living subject, — the pulsations will tell the line of the artery accompanied by its veins; the superficial veins will be evident, from the deep color of the blood seen through their thin walls.

How to arrest Bleeding.

From the descriptions already given, it will be manifest that bleeding may occur either from arteries or veins; and the first question to be settled in an instance of severe hemorrhage should be, which kind of vessel has been injured.

A wounded artery will give out blood in separate jets, one closely succeeding another, and corresponding to the beats of the heart by a leap; the blood, too, will be spirted out as florid, bright, red blood.

A vein, when wounded, will furnish dark red blood in a more or less continuous stream, but without the appearance of jet. If an artery deep down in the substance of a limb be wounded, the appearance of jet may be lost, and the blood, from retention in the deep wound, be darker, as it flows out, than bright arterial blood.

Wound of an artery may be treated—

1. *By Cold*.— This will only be applicable where the vessel or vessels are small, and the jets minute; and the directing on the wound a stream of cold or iced water from a large sponge will promote the contraction of their walls and coagulation of the blood. The additional benefit of washing away all adhering clots will thus also be obtained. *Exposure to the air*, especially in the colder seasons, will have the same good result.

2. *By Pressure*.— This may be—

(a) *Local*; applied to the bleeding point itself.

The fingers form by far the best compressors. One or more should, after preparatory sluicing with cold water, be applied with moderate firmness to the exact point from which blood is found to issue, and there retained for some considerable time, pressing against bone or hard substance. As weariness will so be rapidly induced in the attendant's hand, a relay of assistants should be, if possible, provided, who may relieve one another in turn. This pressure should be kept up until the surgeon's arrival, if skilled aid can in any way be obtained.

Or after the thorough washing, a *graduated* compress may be applied to the wounded part. This is briefly a cone of soft material, such as lint, strips of linen, silk, etc., made up of numerous pieces, and so arranged that the apex of the cone shall be applied to the very bottom of the wound. One very small bit is first inserted, others one by one upon this, until a mass is sufficient to afford a resisting surface; and upon this, as a base, with the view of retaining the cone immovable, a piece of wood or a large coin may be firmly fixed by a cravat-bandage, or roller. The arrangements may be varied according to the exact locality of the injury, and the means at hand; but as the final measure, a bandage applied over the whole limb, commencing at the terminal point and covering over the compress, will be of much service.

(b) *Distant* pressure may be employed, not of necessity to the wound itself, *e. g.*

Finger pressure may be applied to the main artery of the limb, even several inches above the seat of injury, to prevent further access of hemorrhage until skilled assistance can be got.

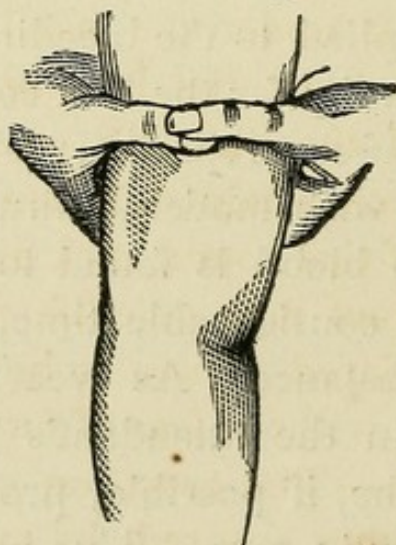


Fig. 8. Finger Pressure.

A “*vessel-compressor*,” or “*tourniquet*,” may be applied with much good, if the bleeding be anywhere below the middle of the thigh. It is hardly likely that in sudden emergencies the instrument specially made for the purpose will be at hand, but a substitute may be readily contrived thus:—

Tie tightly, at some little distance above the

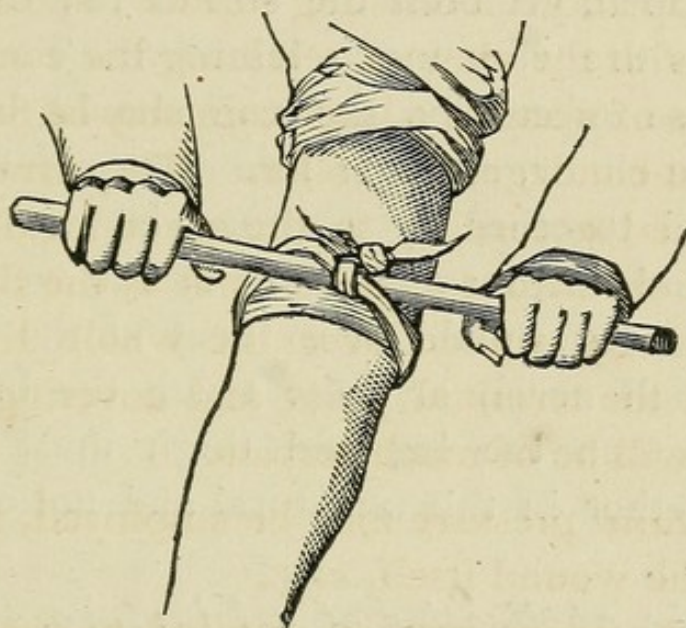


Fig. 9. Stick Tourniquet.

wound, a pocket-handkerchief or cravat once or twice passed round the limb; then, obtaining a piece of tough stick, push it under the handkerchief, and, by turning the stick, twist the handkerchief more and more tightly, until the bleeding ceases. As soon as this result has been attained, fasten the stick by another handkerchief tied round stick and limb together. This rude tourniquet may save life not unfrequently, by enabling the injured person to be transported even for some distance, without fear of further bleeding.

3. *By Position*.—The cessation of bleeding is favored, and sometimes insured, by merely raising the injured limb above the level; placing it, indeed, on

an incline with hand or foot, as the case may be, much above the level of the trunk.

Forcible flexion of the knee and elbow joints will, too, in some persons effectually control bleeding occurring from a wound beyond these joints. The sides of the main vessel are approximated, and though the current of blood through its channel be not thoroughly stopped, yet both the size of the stream and its impetus are very much lessened. To carry out this purpose effectually, the arm should be forcibly bent at the elbow, and the fore arm and upper arm then bound together by a strong handkerchief tied tightly round them as high up as can well be managed. The leg should be so bent at the knee that the heel shall nearly or quite touch the buttock behind, and then the leg and thigh must be firmly bound together in this unnatural and not over pleasant position.

4. *By the application of a Ligature.*— This simply implies the tying a piece of silk or thread tightly around the point from which blood is issuing. In most cases, some small artery is wholly or partially divided, and pressure and cold having failed to arrest the hemorrhage, these further means may be resorted to. Only, be it understood, may this plan be employed if it be impossible to obtain surgical advice. These cases of uncontrollable bleeding call not unfrequently for further and more serious measures, which are not here named in detail, since they can only be carried out by skilled assistance.

If the cut be open, with widely separated edges, it will be possible sometimes, at least, to see the exact point from which blood issues. A common long

stocking-needle, or, better still, a slightly curved or hook-shaped needle (called a tenaculum), may be plunged in for some little depth behind the bleeding point, and then brought out again through the tissues, so as to hold up on the needle-stem a fold of flesh or tissues, in which fold the point of bleeding may be detected.

The needle then must be held well forward, so as to tighten and bring the parts well into sight. Behind the needle a silken thread must be passed, and so tied that it shall embrace firmly the tissues held up, and so mechanically enclose within its grasp the divided point of the artery. The tenaculum may then be withdrawn; in a few days the silk will be loose from the textures ulcerating in the line of its constriction of them, and so may readily be drawn out. A fine packing-needle, somewhat curved, will be available in the absence of a tenaculum.

If a vein be wounded, and this the character of the blood-stream in tint and flow will mostly decide, pressure by finger or graduated compress will be most effectual.

The tourniquet is not to be used, nor is it advisable to employ a ligature to the bleeding point.

If the wound be in the wrist or arm, let it be held over the head, or if in the leg, let the person lie down, and support the foot on a chair. If a person by himself, in the fields, gets a severe cut with a scythe or reaping-hook, or in any sudden emergency, such as a railway accident, he can use the remedy which has saved many a life on the field of battle,—take a handful of dry earth, put this on to the wound, and grasp it tightly, till you can have some assistance.

One of the most difficult situations in which to manage a wound, is about the wrist or thick part of the thumb, particularly if it be deep. If this accident should occur when near a surgeon, let him attend to it directly; but if not, lose no time in dressing it yourself. Two people are required to do this properly. If you turn your hand with the palm upwards, and lay your finger on the wrist a little to the outer side, in a line with the thumb, you will feel the pulse beating; now let one person stand alongside the patient (not opposite to him), take hold of his arm with both hands, place one of his thumbs on this spot, but a little higher up the arm than the cut, and the other on the little finger side, and squeeze tightly. While one is by this plan arresting the bleeding, let the other bring the edges of the wound together, place over it a thick layer of whiting or pipe-clay, or a large tablespoonful of flour, or, if away from home, common clay, then a pad of lint or rag of any description, and secure this in its place with a bandage or handkerchief, so put on as to press firmly on the spot. The thumbs may now be removed, but the hand must not be allowed to hang down. If the blood should continue to force its way through, you must, in addition to these dressings, lay a small pad on the artery where you felt the pulse, and keep it in its place with a bandage, or what is very much better, a strong elastic band. If these means are not sufficient, you must obtain the assistance of a surgeon at once.

It is very desirable that every one, even young people, should understand that in all cases of severe bleeding, be the wound ever so small, the only thing which can be safely depended upon is *pressure*.

Three youths lately were walking through some fields, when one of them, who had an open knife in his hand, fell, and the blade was forced into his thigh. His companions, terrified at the sight of the blood, ran off to procure assistance, while the unfortunate sufferer did his best by holding his pocket-handkerchief to the wound. Long before they could return, his chance of life was gone. Here was a fine, healthy young man cut off suddenly, who might have been saved by the most simple contrivance. Even situated as they were in the open fields, a cork, a stone, a potato cut in half, a handful of soil, a bit of rag, or a bunch of grass rolled up into a ball, and put into a handkerchief or necktie, or a stocking, and tied very tightly round the limb so as to press upon the wound, would have arrested the bleeding, or at any rate have lessened it, till it could have been properly secured.

Excessive bleeding from leech-bites may be readily checked in this way: Pass a common fine and straight sewing-needle through the tissues behind the bleeding point, and tie behind this tightly a piece of strong thread or silk. Remove both the needle and silk at the end of twelve hours.

Bleeding from the Nose is seldom serious except in old people. It is often an effort of nature made for her relief, particularly in children, and if left, will stop of itself; but if it requires to be stopped, or if symptoms of faintness ensue, let the person sit upright, bathe the neck and face with cold water, or dash cold water on the face, or, better still, take a cloth or towel, fold, dip in cold water and bandage the forehead, and let both arms be raised over the head, or be crossed firmly behind the back. This action has the effect of

contracting the muscles of the neck, and diminishing the rush of blood to the head. In very obstinate and violent cases, pinches of very finely-powdered alum may be inhaled or snuffed, or alum-water drawn up or thrown by a syringe into the nose. If these measures do not prove successful, a physician should be sent for. Plugging the nostrils to stop bleeding should not be resorted to, except by one who thoroughly understands how to do it; for if not properly done, the blood, instead of being stopped, finds its way to the top of the throat, and is swallowed.

Bleeding from Slight Causes.—Some persons have a great tendency to bleed. A small cut, or even scratch, or the extraction of a tooth, will cause profuse bleeding, and sometimes endanger life. In such cases take a little whiting, pipe-clay, or powdered chalk, roll it up in lint in the form of a cork or plug, dip it into spirits of turpentine, and press it firmly into the hole left by the tooth. Change every fifteen or or twenty minutes, until the bleeding is stopped; let the last plug remain in the cavity for twelve hours at least, and then do not pull it out, but wash the mouth with cold water until it is loose.

Bleeding from Varicose Veins.—It sometimes occurs that enlarged, or what is known as *varicose veins*, burst, in which case the Stick Tourniquet (*see Fig. 9*), or a tight bandage, should be applied, until proper medical aid can be procured. The best thing to be done to give support to a limb in which there are varicose veins, and to prevent their rupture, is to wear elastic stockings drawn on over well-fitting cotton ones; but if these cannot be procured, the limb should be bandaged smoothly, which should be done in the

morning, and by another person, to avoid altering the shape of the leg by bending, which becomes necessary if bandaged by the patient.

Bleeding into the Stomach; Vomiting Blood.—Blood vomited from the stomach is of a dark color, and frequently mixed with some portion of food. This form of bleeding is not often dangerous in itself, but, as it may be a symptom of a more dangerous disorder, it is always advisable to consult a physician. In the meantime the patient should keep quiet, and may take a little salt, vinegar, or lemon juice, in a wineglassful of cold water, which may be repeated at intervals of half an hour or an hour, according to the urgency of the symptoms, until the physician arrives. Nothing more than this should be attempted, except the giving of a little cold water, or crushed ice, which may be swallowed before it melts, a teaspoonful at a time.

Bleeding from the Trachea and Lungs.—The raising of blood is not an uncommon occurrence, and, until recently, was regarded as a very dangerous symptom. In about eight out of every ten cases, however, the blood comes from the trachea (windpipe) or large bronchi (*air passages*), and sometimes from the posterior part of the nose. In all such cases, there is nothing more serious than in nose-bleeding, which, however, under certain conditions, may arrive at a point of considerable danger. Blood from the bronchial vessels (*air passages*) of the lungs is almost always of a bright scarlet color, and usually frothy, and is thus easily distinguished from blood coming from the stomach, which is of a dark color. The lower down the point from whence it comes, the more

will it be mixed with mucus, and the greater the danger. When blood comes from the lung-tissue, it is always very dark, comes up pure, generally in profusion; and is usually occasioned by external injuries. In all cases of raising blood, those in attendance should keep perfectly calm, and endeavor, by some little playfulness or pleasantry, to enliven and cheer the patient, who in the mean time should be placed in a half recumbent position, and not allowed to hack, cough, try to raise, or to talk, or to use any exertion whatever. With the exception of a little salt, vinegar, or lemon juice, which can do no harm, and may assist in quieting the patient, no attempt should be made to stop the bleeding until proper medical assistance arrives.

CHAPTER V.

WOUNDS: THEIR VARIETIES AND TREATMENT.

THE mode of treatment of all wounds may be described as coming under four divisions:

1. By washing with a sponge and warm or cold water, insure the thorough removal of any material which may have been driven into the wound. Grains of sand, dirt, etc., should be got rid of by the use of water. Larger substances, fibre of linen, cloth, or clots of blood, should be removed by the fingers or by surgical forceps, — the surface of the wound, in short, accurately cleaned.

2. Stop flow of blood, either by pressure, ligature, or position, as explained in previous chapter.

3. Bring the divided portions as nearly as possible into contact, observing as guide for this purpose any mark on skin, natural fold, or crease, etc., and, when so adjusted, retain them in their natural position:

(*a*) By plasters. — For this end the ordinary resinous adhesive plaster, court-plaster, or isinglass plaster, may be employed.

(*b*) By compresses and use of bandages.

(*c*) By stitches or sutures. For this purpose needles of different shape and curve, and made so as to carry silk of sufficient strength, are employed; or common

sewing-needles are available, with silk wound round them in the form of a figure 8.

4. Favor the growing together of the divided edges by keeping the patient thoroughly at rest, feeding him lightly, and keeping the functions of the body in proper order.

Incised Wounds or Cuts.

These are made with clean-cutting instruments, in every-day life, by razor, knife, glass, etc. ; in military engagements, by blows with sword or sabre.

If the blood flows regularly from the wound, and is dark-colored, there need be no difficulty in managing it ; but if it be bright scarlet, and spurts out in jets, the best thing to be done is to send at *once* for the doctor.

After cleansing the lips of the wound thoroughly from all extraneous substances, and checking the bleeding, the two edges should be fitted together as closely as possible. If the wound be on the head, the hair on each side may be tied across the wound at short intervals, so as to keep the edges in contact, or the hair cut very close just round it, so as to admit of using plasters.

If plasters are used, they should be applied in strips of length and breadth proportionate to the injury inflicted. Having first softened the plaster surface, one end of the strip should be closely applied to the sound skin, at right angles to the cut, and at some distance from its edge ; then the wound being closed by temporarily holding together by the fingers, carry the strip across the line of contact, and affix it to the sound skin at a like distance on the other side of the cut. Each strip so applied should lie parallel with the pre-

ceding ones, and when a sufficient number have been put on, a compress of three or four folds of linen, placed over and in the line of the wound, should be applied, and a few turns of a roller over all will keep this in place.

In removing or changing plasters, the ends should first be raised, and both lifted up from the outside to the centre, so that no dragging may take place at the injured part. If fresh plasters are needed, apply the strips one by one as the old ones are removed, not exposing the wound to the risk of gaping for want of support.

Should the wound be deep or extensive, it will be well to employ sutures; these may be of silk, thus applied:

A needle threaded with silk is passed through the skin and tissues just beneath, on one side of the wound *from without inwards*, and then through a corresponding point of the upper lip *from within outwards*. The silk so carried through must be tied in a firm knot. The separate stitches should be from half an inch to an inch apart.

The silk may remain undisturbed for three or four days, and if then cut through on one side of the knot, the stitch may be easily taken out.

Or a common sewing-needle may be used thus, forming what is called "*the twisted suture*"; having introduced it at first as if it were a needle carrying silk, the needle is allowed to remain holding both lips of the wound in contact; and over this needle a piece of silk may be twisted, so as to form the figure 8, and to embrace with its loops the two projecting ends of the needle, thus holding, more thoroughly even than on

the other plan, the divided edges in close contact. After three days the needle may be drawn out, and the silk will then fall off.

Much may be done by position only, in keeping the edges of an incision close together, especially in wounds of the hand or arm; thus, a wound on the inner or front surface of the arm will need bending of the elbow; on the back surface, extension of the arm.

If plasters, etc., be not in readiness, some support may be given to the divided edges by wrapping strips of linen, moistened with cold water, round the part injured; these will adhere more or less closely, and may either be allowed to remain, or be removed to allow the use of a more accurate kind of dressing.

It may be well here to say that, even though thorough division of a part may have taken place (*e. g.*, a finger or a toe, or even though a portion of the nose or ear may have been completely severed), still an attempt to reunite the divided parts ought to be made, and success will very frequently follow the attempt.

The directions given above will, in the majority of instances, tend to the cure of an incised wound, by

The Immediate, or Primary Process; that of rapid adhesion between the surfaces which have been divided, but are within a short time closely brought together and retained in absolute contact. If this desirable result be attained, there will be no appearance of discharge of matter or watery fluid — the part will not become the seat of pain — especially the feeling of distension from within will not be complained of; and, as time passes on, the smarting of the wound will more and more subside; then, for a day or two at least, the dressings may be undisturbed, and when removed

(and this should be done only by degrees) a certain support should be afforded to the injured part by a repetition, in some modified degree, of the same plan of dressing:

The incised wounds with which soldiers may have to deal in assisting their wounded comrades, will be those inflicted with the sword; their immediate dressing will best be confined to the arrest of bleeding by pressure, *direct* on the wound itself, or *remote* on the main vessel of the limb — to the maintaining, so far as may be done, the position best suited to fulfil the necessities of each special injury, and to the retaining, by cravat or roller, simple dressings or compresses upon the wound.

The transporting the sufferer to the hospital will be imperative: on the ready attention of a skilled hand the result of a severe incised wound will very much depend. The motionless condition of the injured part, and the easy removal of the whole body, are points also to be borne in mind.

But this rapid cure of incised wounds cannot always be obtained. It may be said, in passing, that of this kind of repair, these clean cut wounds are alone capable; in other cases, the injury will be repaired in a different mode; that is, by

The Secondary Modelling, or Moulding Process.
— Here the surfaces of the wound, which have failed to unite by primary adhesion, are found to be covered with minute conical elevations, called granulations, and these are bathed in matter, which is yellowish-opaque, and of the consistence of cream; to this the term of “pus” is applied. Even at this stage, if the opportunity be watched, it is not unfrequently possible

to procure a growing together of two surfaces so covered, the granulations fitting into, so to speak, and inosculating with each other. More frequently, however, the wound is healed by gradually filling up to the level of surrounding parts by the steady multiplication of these granulations, one above another, until the gap is fairly obliterated.

Therefore, supposing an incised wound to be the seat of throbbing pain, the pain of a distension from within, and the edges to have become red and inflamed, or pale and flabby-looking, the closely-applied dressings should be removed, the retained pus allowed to escape, a few strips of plaster be applied to keep the divided parts near to, if not in absolute contact with each other, and the whole wound dressed with water-dressing, or bread poultice, etc. The exact application, whether of cold or heat, may be safely left to the liking and feelings of the patient, but it should be continued so long as the discharge of matter lasts, and until there is formation of new skin, and sound healing of the external wound.

The new flesh may rise above the level, be unnecessarily exuberant, and so retard healing; if this be the case, a piece of blue-stone (sulphate of copper) may be lightly rubbed over the whole, or some pressure used with a piece of dry lint for a day or two.

Punctured Wounds, or Pricks.

The most serious injuries coming under this head will be bayonet wounds received in battle. As soon as possible, soldiers meeting with such injuries should be transferred to the hospital. An early treatment at

the hands of a comrade should be devoted to arrest of hemorrhage by local pressure (fingers or bandage), and to the preserving during transport perfect immobility of the part injured.

In civil practice, punctured wounds, apparently very trivial, are yet sometimes most serious in their results. The entrance of a thorn deeply into the tissues has again and again given rise to much irritative fever, deep collections of matter, and even to most serious illness.

The rules of treatment should be to extract the foreign body, if it be possible, with tweezers, or with the point of a needle, and this extraction will often be aided by a free division of the skin and deeper tissues by a lancet or knife; or, if the foreign body be a fish-hook, which has been run into the tissues beyond the barb, it can be easily released by cutting the line entirely away from it, turning the point upwards, and passing it through. Then the application of moisture, as a large bread poultice, will give much relief, and the arm or leg should be kept thoroughly at rest.

If inflammation should follow, with throbbing pain, lines of redness running from the injured point to the trunk, and general fever, the non-professional (if other advice be impossible) will give most relief by applying leeches in good number near the seat of injury, and then abundance of warmth and moisture. If pain continue, and swelling of the part come on, an incision with a lancet, so made that the surgeon's cut shall include the line of the original wound, will often give vent to contained matter, and so afford great relief. After this, the wound may be expected to heal slowly by the process of filling up by granulations.

Lacerated or Torn Wounds.

These wounds do not entail the same risk of severe bleeding as incised or punctured injuries; and the soldier dealing with them, as caused for the most part by missiles discharged from guns, or by stones, pebbles, etc., thrown up by cannon-shot, will have to attend to —

The removal of foreign substances from the surface of the wound, the application of cold-water dressings, and the easy and quick removal of the sufferer.

In civil practice, the simplest form of this kind of injury, only a *scratch*, is yet, if it be irritated by dirt, by movement of the limb, or by violent exertion, very often followed by awkward consequences. Inflammation may spread from the finger up the arm, and matter form deeply near the wound. The same treatment noted in punctured wounds — leeches, heat, with incisions to let out matter — must here, also, be resorted to.

It may be well to add, that although some kind of support, as by a few strips of plaster or a compress, etc., may be of service, no close apposition should be attempted. The edges are not likely, from the irregular character of the wounds, and from the force employed in their infliction, to grow together. The cure by granulation should be aided by rest, warmth, and position.

In the less severely lacerated wounds, it may often be well to try to procure *healing under a crust or scab*. Thus the wound may be treated by the early application of a piece of lint soaked in blood, and this

artificial coating may remain undisturbed, even for many days.

If much pain and feeling of distension supervene, the covering may be raised at one part only; but if there be much discharge, it will be requisite to take it entirely away, and dress the granulating sore with water dressing, poultice, etc.

Contused Wounds.

These are wounds made by the falling on the part of some heavy blunt-edged material, or by the person falling on to stones, cinders, etc. The weight of the object, and the force of its fall, or the weight of the person, and the force with which the part is brought in contact with the object, bruise and crush the edges of the cut, and no bringing together will induce them to unite with each other. Before the breach of surface can be repaired, the damaged part must separate as a slough, or piece of dead tissue, and then the wound may become clean, secrete healthy pus, and heal by granulations.

Cold or warm applications may be employed at first, and poultices or water-dressing will complete the repair.

Gunshot Wounds.

Bleeding in these injuries is not very frequently found to occur immediately. Simple water-dressing, retention of such dressings by roller or cravat, and removal as speedily as possible to the regimental surgeon, are the means to which the soldier may well resort.

One of the immediate consequences is *shock*, more or less severe; death even may take place very speedily from this one cause. Some stimulant should be soon given, and the head kept low. Encouragement by voice or gesture is always advisable.

These cases only can be treated by a non-professional when the shot has injured some part not material to life, or where it has passed through a limb without damage to the bone or the large blood-vessels. The external wound may, as in the instance of the face, etc., be brought together with strips of plaster, and dressings be applied on the general principles already sketched, while perfect rest must be maintained, and the patient must be lightly fed.

The remarks hitherto made in treating of wounds have had reference for the most part to their primary or immediate treatment. But it may well happen that medical assistance is not to be had, and after some short time a wound, be it incised or lacerated, will need further attention. This should be remembered as a cardinal rule, that any union obtained by the use of sutures or plasters, position, etc., although it may be but slight compared with the whole extent of the injury, should not be lightly disturbed. Great gentleness will therefore be necessary in after dressings. First, the plasters, compresses, etc., very possibly partially, at least, adherent to the wound, and matted with blood or puriform discharge, should be well soaked with warm water, and when so softened, are then to be removed. The surface of the wound should be gently cleansed with sponge and water, and clean dressings applied.

These may be, if the edges are red and angry look-

ing, with but scanty secretion of matter, still softening and moist, such as poultices and water-dressing. If the wound look healthy, and the pus discharged be satisfactory, the water dressing will still be available, and later on some astringent or drying applications will be advisable. Hardly any sore will pass through all its stages to perfect recovery, without deriving some benefit from an occasional change of application.

CHAPTER VI.

FRACTURES, OR BROKEN BONES.

FRACTURES almost always result on violence directly or indirectly applied to the injured limb. The breaking happens generally at some distance from the joints, therefore in the length, or what is surgically termed the shaft of the bone.

It is not difficult to make out that fracture exists,—there will be loss of power over the injured part more or less complete, some alteration in contour of the limb; it will be bent, twisted, or shortened; pain about the injured point, with swelling coming on even very quickly; and when the injured limb is moved by some bystander there will be a freedom of motion which is not found in the healthy limb. Consequent on this very movement, too, especially if the fracture be about the middle of one of the long bones, there may very probably be heard a grating, due to the rubbing against one another of two irregular and roughened surfaces of bone.

All these signs may not be present; but if the limb have become suddenly powerless, and there be even some of the other symptoms, it will be wise to treat the case as if fracture had been declared to exist by a competent judge. It is difficult to give simple rules

for the distinguishing between a fracture and a dislocation; in very many cases it is exceedingly difficult, but this much may be said:—

Fractures do not, in the majority of cases, implicate joints.

Dislocations have this as their especial character.

Again, the displacement of a fracture may generally, by a gentle and quiet extension, or drawing out of the limb, be remedied, and for the time, at least, the shortening and deformity will be found to disappear. Not so with a dislocation: this latter injury will require more forcible and more systematic extension.

The extreme mobility (in a bystander's hands) of the fractured ends, does not exist with the displacement of a bone at its articulation.

The position of the injured parts will vary, too; a patient will have slightly moved his limb, if there is dislocation, to the most easy position; while the terminal part of a fractured limb will fall inwards or outwards merely by its own weight, and without reference to the patient's feelings of pain.

These injuries are usually met with when a person is dressed; therefore, unless there be bleeding, or something to call for immediate exposure and examination of the damaged part, do not be in a hurry to remove the clothes. If the arm be hurt, extemporize a sling from a neck-handkerchief or some other article of dress, and support the arm from elbow to wrist, tying the ends of the handkerchief in a knot over the coat-collar behind. If the thigh or leg be in pain, fasten the injured limb to its fellow by a cravat-bandage or two, and take care that they lie side by

side, and on the same level; or fasten outside the clothes some temporary support, a piece or two of straight stick with a bandage, and then remove the sufferer quietly and carefully to some house near at hand.

If medical aid be available, send for it without any delay; and be careful, if in the country, and so at some distance from the doctor's house, to forward a clear statement as to the apparent nature of the accident, which limb is hurt, and where and how it happened; let this statement, too, be in writing, if possible.

It may well happen, however, that skilled assistance cannot be had, and in this case the patient should be undressed quietly and cautiously. It will be far better to slit up the dress on the arm or leg with a pair of scissors, than to pull it off; but however the uncovering of the injury may be managed, it must be done very slowly and gently, and the limb should be supported so as to prevent jarring or shaking to the damaged part; it must be carefully kept, too, in a right direction, for otherwise some sharp splinter of bone may penetrate the hitherto unwounded skin.

Fractures have received various names in accordance with the characters they present; for our present purpose, it will be sufficient to speak of them as —

Simple or Compound.—A *simple* fracture is the term applied to the injury, where the bone is broken, but with no coexisting external wound of the integument; while the name of *compound* refers to those fractures where there is external laceration of the

skin, and a wound leading down, in the majority of instances, directly to the broken ends of the bone. In the main points of treatment there is but little difference; the *simple* fracture will heal much the more quickly of the two; and the *compound* injury will be most successfully treated by those means which will tend to the immediate healing of the wound of the skin, and so to the exclusion of the outer air from the interior injury. If there be much laceration of the skin, from the bone having protruded through it, or from the force or direction of the first injury, the wound must be treated as a severe lacerated wound, with water-dressing, poultices, etc.; but if the external aperture be a small one, and the edges of this small wound not battered or bruised, it may be closed at once by putting over it a piece of lint dipped in blood or soaked with Friar's balsam. Then leaving this dressing undisturbed as long as possible.

In order to treat fractures successfully, the attention should be directed to the following points:—

1. To insure the fitting together of the fractured parts.
2. To maintain the ends in close apposition.
3. To keep the sufferer in a state of thorough quietude, if the fracture involve the principal bone or bones of a limb.

New reparative material is thrown out very speedily, between and around the ends of the breakage, and subsequently becomes converted into bone. A period varying from one to three months will be required for the thorough repair of the damage, according to the locality and severity of the wound; the time will vary, too, according to the supply of

blood usually afforded to the part. Thus, fractures about the face or trunk are repaired more speedily than those of the limbs.

As already named in an earlier chapter, splints, or unyielding pieces of material, and bandages, are essential to the successful treatment. Pads of soft stuff may be with advantage introduced between the splints and the limb, with the purpose of transmitting an equally diffused and constant support, and of preventing undue pressure on any prominent point.

Pain and swelling are the immediate or early results of a fracture, and it is well that a non-professional, in undertaking a case, should allow several hours, it may be even a day or two, to pass over before he ventures to apply the splints and rollers as a permanent dressing. Yet the limb must not be left quite alone. Lateral support should be given to it by small pillows, pads of tow, folded garments, or some such soft materials, and cold applications, lint dipped in cold water, etc., will aid in removing the swelling. If the leg or thigh be broken, the limb may be placed in its proper direction on one or more long pillows, and these tied at intervals round the limb with some tapes or cravat bandages.

The subsequent treatment, the swelling and pain having in some measure at least subsided, may thus be managed:—

1. Well wash the limb with some soap and water and a large sponge; some weeks must pass before this can again be done; dry with a soft towel, then,

2. Gently, yet firmly, draw the limb down into its normal position, so doing away with the alteration in shape. Gentle pressure about the seat of injury will

aid in putting the fragments (there may be several such pieces) in their proper position. Let the limb be held in this form by some second person until —

3. Splints can be applied. They are best made of wood, cut a little wider and longer than the division of the limb where the injury has been inflicted, and should have some soft pads on their inside; these last may be formed from tow or cotton wool, stitched up in folds of linen — from pieces of flannel, soft carpeting, or woollen structures cut to the size of the splints, and placed in the requisite number of folds and thickness. The splints must be retained in close contact with the limb, by cravat bandages, straps fitted with buckles, or by rollers applied as directed in a previous section.

Pasteboard or gutta-percha will afford ready means for the making splints for fractures, especially of the smaller bones, simply needing to be softened in hot water; they will assume very fairly the shape of any part to which they are applied, and, therefore, should be fitted when the fracture has been reduced, and while the parts are still retained by the operator's hands in the required position.

A satisfactory casing, combining the firmness of more solid material, with the ease of application of an ordinary roller, may be had from the use of rollers soaked in starch of usual consistence, or in a mixture of acacia-gum mucilage, thickened with chalk. The limb should first be covered throughout with wadding retained in place by a dry roller, and upon this the starch roller, well soaked, may be applied, taking care to make the turns evenly, and to place each turn

closely on the preceding one. In a few hours it will be dry and firm.

This mode of dressing is available for a non-professional, in simple fractures of one, or even of the two bones either of fore-arm or leg; and as a subsequent protection, when the splints, etc., first applied, have been removed, therefore at the expiration of three or four weeks.

Certain fractures demand a special notice :

1. *Fractures of the Ribs* are consequent on a fall or severe blow on the side, and may often occur without causing an external wound. There is complaint of aching pain, which becomes acute or sharp on taking a deep breath, and is referred to one particular point, to which, if pressure be applied, acute pain will be caused; or, if the ribs near the spine be suddenly pressed, it will cause pain at the point where the bone is broken; and very commonly, on applying the fingers to this point, grating may be felt as the patient breathes.

When there is spitting of blood resulting from the injury received, the patient should be kept quiet, and *no* stimulants given. In case of a bruise, hot fomentations, or a large hot poultice, may be employed with advantage. Then they are best treated by the use of a flannel bandage, four or five fingers' breadth, so applied in turns round the chest as to give support to the injured part, and to limit the movements of the chest-walls in breathing. *Or*, the affected side may be strapped up with broad and long strips of soap-plaster, one overlapping the preceding one, but leaving the uninjured side quite free from restraint. Where this latter plan can be managed, it will be preferable.

Each strip of plaster should reach from the centre of the chest to the middle line of the spinal column behind.

Subsequent acute pain may require smart lowering measures—low diet and bleeding.

In the case of fracture with severe external wound, the best thing to be done is simply to apply some folds of wet rag and a bandage. Cause the patient to lie on the *injured side*, rather than on the sound one, and send at once for medical aid.

2. *Fracture of the Collar-bone.*—This injury mostly results upon a fall when the person has struck the shoulder violently on the ground, *e. g.*, in fall from horseback; but it may be caused by direct violence to the bone itself, and is generally broken near the middle.

There is a feeling of loss of support to the corresponding arm; it cannot be raised to the level of the shoulder without a good deal of pain; there will be projection of one end or the other at the seat of fracture, the one piece of bone thus overlapping the other one, and grating may be felt on pressure with the fingers. If both shoulders be drawn backwards at the same moment, this overlapping of the fractured ends will disappear. There is, however, a great difference in the way in which bones break. In a child, or young person, the bone is tougher and more elastic than in an elderly person; hence in children and young people, the fracture is not usually square across, like a broken pipe-stem, while in the aged the fracture is usually of this character.

The simplest mode of treating this injury is by the use of three handkerchiefs—large square ones will be

best for the purpose. Of these, one should be folded tightly into the shape of a square pad, and placed well up into the armpit, so as to keep the shoulder up and out; another put on as a sling, embracing in its hold the whole fore-arm from the elbow to the wrist; and the third employed for the purpose of retaining the arm in close contact with the side of the chest.

If a long and broad roller be within reach, it may be used to confine the arm to the chest in place of the third handkerchief. The handkerchiefs and roller

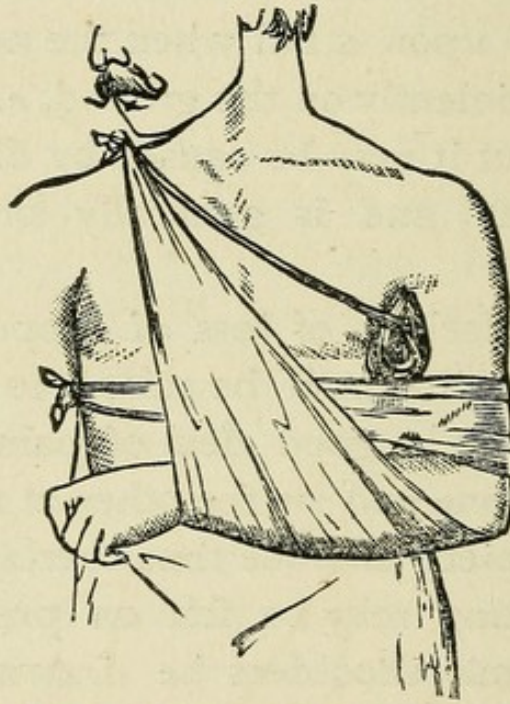


Fig. 10. Fracture of Collar-bone.

should be firmly stitched together, more especially at the points where they intersect, with the purpose of preventing slipping.

The arm should be retained in its immovable position for three weeks or a month, and some thickening or elevation must be expected to remain at the site of fracture, from the difficulty of maintaining the fragments perfectly in place.

3. *Fracture of the Upper Arm.* — The patient is unable to bend the elbow or raise the fore-arm, and there will be the usual signs of fracture at the point where pain is felt. As a rule, the injury results in some direct violence.

The arm-bone (humerus) may be fractured at any point between its ends. The following remarks will only apply to a simple fracture occurring about the middle of the shaft:

A roller should be put on from the fingers upwards, covering the whole limb to the shoulder, and the arm is best placed with the elbow bent at a right angle. Then four splints should be provided, two rather longer than the third and fourth. These will be best made of wood, and of a width proportioned to the size of the arm. Each splint should have a soft pad of tow wrapped in linen, or some folds of flannel on its inside. Then one splint, the longest, should be

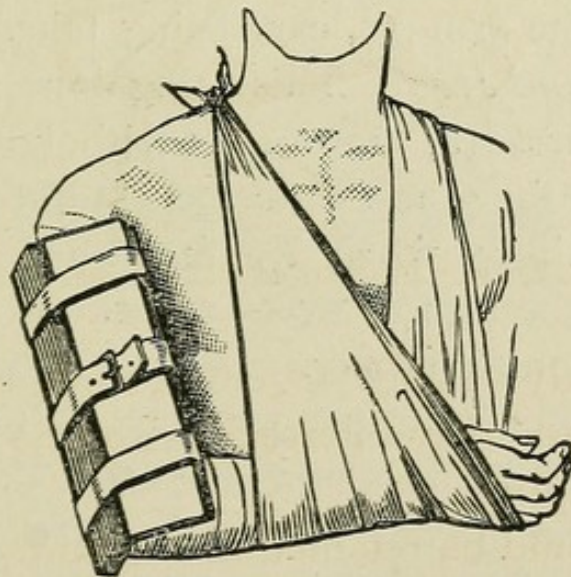


Fig. 11. Fracture of Upper Arm.

placed outside from the shoulder to the elbow; another almost equally long on the back surface of

the arm to the point of the elbow ; while the third and fourth are placed on the inside and front of the arm. Care must be taken that the fourth and shortest splint, reaching from the bend of the elbow to the armpit, does not press too much on these points ; the ends of the pad should cover over the extremities of the splint. These splints, so applied as to embrace and steady the fracture, should be retained in position by two or three webbing straps with buckles, or by a roller evenly and carefully applied. A sling will serve to support the fore-arm, and the patient should, if possible, sit up in preference to lying down : in the former position the mere weight of the fore-arm tends to keep the fractured ends better in their place.

After the swelling has entirely subsided (which should be the case in from two to three weeks), the splints may be removed, and a starch bandage substituted for them. A soft cotton or linen bandage should be put on, beginning at the fingers and continuing it to the arm-pit, care being taken to put it on *very smooth and even*. This being done, take another bandage, saturate it thoroughly with hot starch, and put it on over the other, from the bend of the elbow to the arm-pit. This, when dry, forms a complete case, nicely fitting the arm at every point, and may remain on until the bone is strong. Should it become slack, so as not to afford the proper support to the arm, it should be cut off, and a new one applied.

4. *Fracture of the Elbow-joint.* — It sometimes occurs that the bone which projects at the back of the elbow is broken by a fall or blow. The arm cannot then be used. If a comparison of the two arms be made, it will be found that the point of the elbow of

the injured arm is gone, and by the contraction of the muscles may be somewhat drawn up toward the back of the upper arm. The arm should be kept quite straight, a well-padded splint placed on the inside, the broken bone brought down to its proper place, and two bandages put on like the figure 8, and sewed to the splint.

5. *Fracture of the Fore-arm.* — The alteration of shape, and the inability to perform movements without pain, will, with other symptoms of fracture, tell the existence of this injury. Of the two bones, one only may be broken; this will not be easily detected, but the uninjured bone will almost obviate the need for casing the fracture with splints. Supposing that both

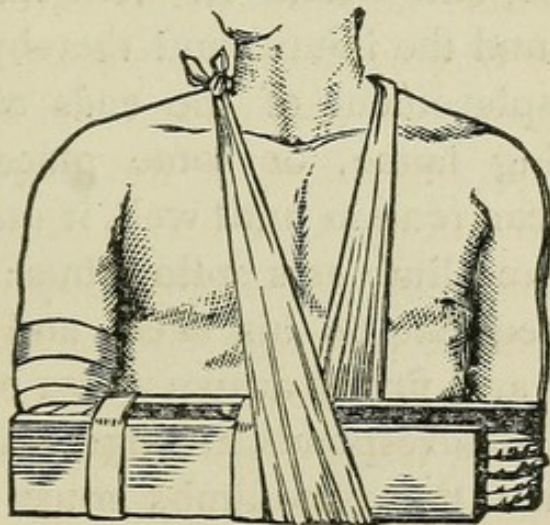


Fig. 12. Fracture of Fore-arm.

bones were fractured, two padded splints will be necessary, reaching from the tips of the fingers to the point of the elbow, one placed before, the other behind — only taking care that the fore-arm is so placed, after the fracture has been adjusted and before the splints are fixed, that the inside of the hand and fore-arm looks

directly to the front of the chest. The splints will need securing with roller or webbing-straps, and a sling spread out from wrist to elbow will also be necessary.

6. *Fracture of the Thigh* follows generally on direct violence, and may occur at any point throughout the shaft of the bone. It is not difficult to detect; usually there is some shortening, positive alteration in contour, and the patient is unable to raise his limb from the bed.

If the accident occurs in the field, woods, or at a distance from home, in the absence of something better, stiff straw, reeds, small willow twigs, bits of thin board, or pieces of tin, or iron, or even an old hat, if it be stiff, may be prepared and temporarily substituted for splints, and bound on with handkerchiefs, braces, etc., round the injury, and thereby save pain, and further displacement of the ends of the bone. But on reaching home, or some place where the injured person can remain until well, it may be treated by using the sound limb as a splint, thus: The patient should be placed flat on his back, and the injured limb be quietly and firmly drawn down by traction at the ankle until it corresponds in length with the opposite limb. Then the two limbs must be fastened together at knee and ankle by webbing-band, or with buckle, or by turns of a broad roller; first, however, taking care that at all possible points of contact some well-made pads intervene between the two limbs, therefore especially at the sides of the feet, the ankles, and the knees. The patient must be kept quiet in bed for six weeks at least.

The application, however, of a long splint on the

outside of the limb, with a shorter splint on the inside, will furnish the best security for satisfactory repair of the broken bone. For an adult the splints should be about four fingers' breadth, and well padded with flannel, or layers of tow encased in linen or calico. The

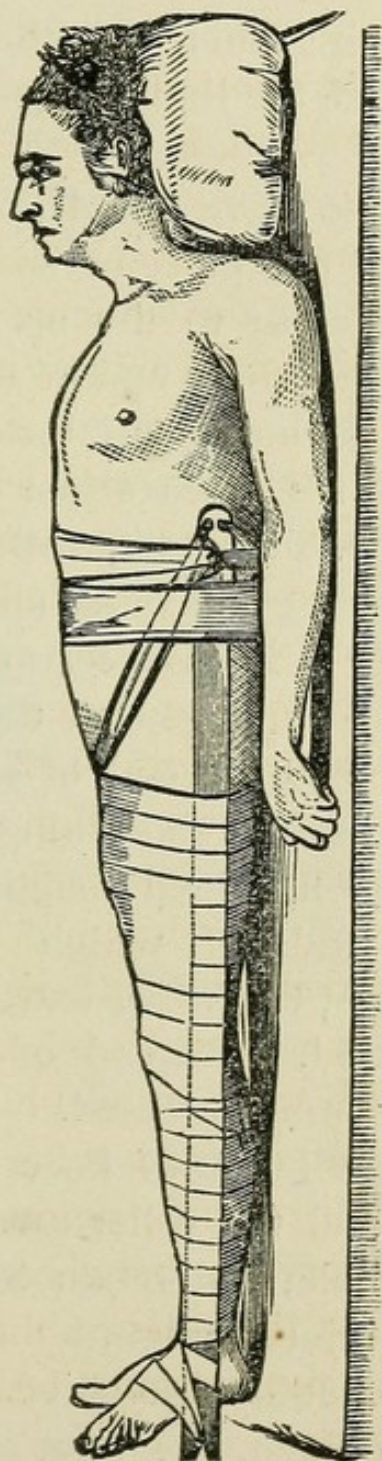


Fig. 13. Fracture of Thigh.

outer one will vary in length according to the height of the patient; it should project some four inches below the foot, and reach up to midway between the outer and upper prominence of the thigh-bone (great trochanter) and the arm-pit.

First, then, the whole limb should be evenly bandaged from toes to groin; then the outer splint will need applying, and the limb must be firmly fastened to it.

It is customary to have two deep notches cut at the lower extremity of the piece of board, and two holes bored through it close to the upper end. The foot must be fixed to the lower end of the splint, carrying the roller round the ankle and instep, and then after each turn through the notches just mentioned — extra padding, cotton, wool, or tow, will be needed to protect the prominences of the outer and inner ankle from too much pressure. Then the limb, to a little above the knee, must be bandaged to the splint; and this point reached, the upper end of the splint must be fixed so as to prevent shortening at the fractured point, by passing a folded handkerchief round the groin, the two ends of which may be threaded through the holes at the upper extremity of the splint, and firmly knotted. Instead of the pocket-handkerchief, a roller may be used. The inner splint, reaching only from inside of knee to the groin, may now be put on, and the roller carried upwards so as to encircle the whole, and retain both splints in close contact with the injured thigh.

Rollers or pocket-handkerchiefs should fasten the splint to the abdomen, the knot of the latter being made upon the splint.

The patient must of necessity lie on his back, and six or eight weeks will pass over before the fracture is thoroughly consolidated.

7. *Fracture of the Cap of the Knee.*—Whenever this occurs, the person loses all power of standing on that leg; and if placed upright, drops down again instantly. This accident is usually caused by falling on the knee, or in trying to prevent falling. The bone is split across, and has left a gap similar to that of the elbow when the bone is broken, as already described.

The leg should be kept straight, and treated in the same way as for the elbow. When the patient is obliged to move, a strong bandage should be passed round the back of the neck, over the shoulders, and under the foot, and made tight enough to support the entire weight of the leg.

8. *Fracture of the Leg.*—The two bones of the leg may be broken at the same time, or one only may be fractured. If the latter be the case, it is usually the outside, and more slender one of the two, that is broken across, and for this little treatment is necessary.

If both bones are broken, the patient is unable to raise his limb; there is distortion and swelling, with pain at the seat of fracture, and the ends of the bones will move on one another slightly, if the limb be raised by an assistant.

The fracture may be treated by the employment of two side splints: these should be applied well padded, one to each side of the limb, and retained in place by webbing straps or by roller. The patient should then lie on his side, the one corresponding

with the fracture, keeping the limb as immovable as possible. Four or five weeks' confinement to bed must be insisted on.

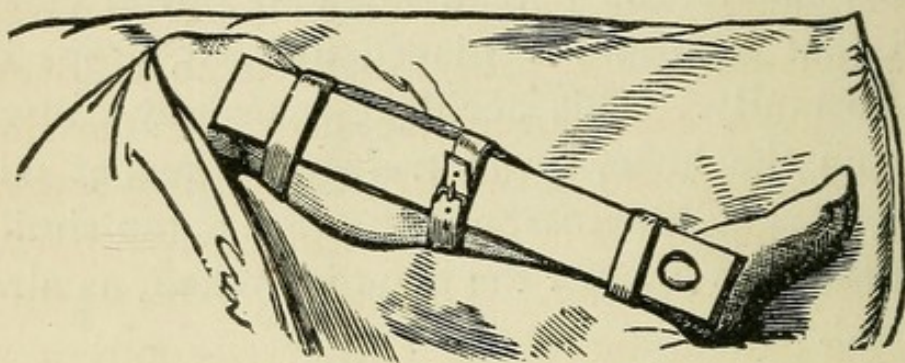


Fig. 14. Fracture of Leg.

Or, again, the patient may have the less irksome position on his back, if the fractured limb be steadied either by a *straight outside splint*, or by the application of *moulded splints combined with starch or gum and chalk casing*.

If the straight outside splint be employed, it should be made of wood four fingers' breadth, to reach from the knee to below the foot, and with the lower end notched as in the long thigh splint. The inequalities about the ankle are great, so that the padding must be abundant, and well arranged; the limb must be well fixed to the splint by roller, put on as directed in the case of a thigh fracture.

Should the moulded splints be preferred, the limb is first to be covered with a dry roller; upon this, closely fitted to the limb, while they are still pliable from soaking in hot water, gutta-percha or pasteboard splints may be adapted; and these will form a satisfactory basis for the application over them of a bandage thoroughly soaked in starch of the consistence of cream, or in a

mixture of the mucilage of acacia-gum, into which chalk has been stirred to afford some consistence. This wetted bandage should be put on just as any ordinary roller, very evenly and closely, and the composition, starch, etc., should be well smeared over the whole outside of the roller, so as to cover over and cement down each successive turn. If the limb so encased be exposed to the air, it will, in a few hours, have a thoroughly firm and continuous support from one end to the other. This plan of treatment will allow the patient more and earlier freedom of movement than he could dare to use with the older form of splints.

In the remarks above given with respect to fractures of the lower extremity, it may be well to mention that in each instance a careful adjustment of the fracture is presupposed before any apparatus can be applied. Firm yet steady drawing down of the limb by the operator, while an assistant fixes the bony framework about the hips, will procure the necessary length; and gentle pressure on the displaced fragments will mould the immediate neighborhood of the damaged bone to something like its natural form. This having been done, the limb must be retained in its improved position by the hands of some competent bystander, until splints and bandages can be applied.

All these measures must be carried out without absolute force. Quiet and gentle proceedings will accomplish far more than any exertion of main strength.

9. *Fractures of the Bones about the Head and Face* may occur: it is not possible that a non-professional can treat them satisfactorily with the intention of replacing fragments, etc. All that is open to him is to

insist on thorough rest of the parts, to apply cold and soothing applications, and to remove any foreign material that may be lodged in the wounds inflicted at the same time. An exception to these remarks may exist in —

10. *Fracture of the Lower Jaw.* — This injury is not difficult of detection: it results on direct violence, and the bone in its whole outline is so easily examined by the fingers, that irregularity or change of direction must be found out. Sometimes it will be enough to support the injured bone, if there be but little displacement, by one or more cravat bandages, which are applied so as to retain the jaw in place, and may be tied, one at the back of the neck, and another across the top of the head. If, however, there be separation and displacement, such that the two ends cannot easily be maintained on the same plane, a further arrangement must be contrived; and this will be best done by employing a piece of gutta-percha, moulded so as to form a cover for the jaw on both sides, and in its whole length; this will give some defined support, and may be kept in place by the use of cravat bandages, or a roller applied as above directed. Some three weeks will pass before union can be looked for; and through this period the patient should be constantly supported on soups, beef-tea, etc., etc.

It is imperative that when a fracture of the lower extremity has been reduced and secured by splints, the limb should be protected from accidental catching of the bed-clothes, etc., which might cause sudden jerks of the limb, and lead to severe pain. The clothes should be kept away by using some stools, or, better still, cradles: these are made either of wicker or wood

in the shape of an arch, and represent exactly one-half of a circle, the free edges resting on the bed. The limb should be placed in the vacant space between the two sides, and so under the arch.

One word may be added respecting the mode of dealing with fractures which extend into, or are in close proximity to, joints. It will happen, not unfrequently under the most favorable conditions of attendance and care, that the joint implicated in the injury remains ever afterwards stiff and fixed. This result must be expected; and therefore the fractured ends should be placed in close apposition, to insure union as directed in the above sections, while the joint is straightened or bent at such an angle as may be most convenient for after-use, remembering that in this position once chosen, the limb will probably remain for the rest of life. Therefore, if the fracture have happened in the lower extremity, and the knee-joint be involved in the injury, the knee must be nearly straightened, so that walking may be afterwards accomplished with but little trouble. If fracture extend into the ankle-joint, the foot must be placed at right angles to the leg.

The elbow may be implicated, and then, in accordance with the employment or the wishes of the patient, the fore-arm should be placed at an angle more or less decided with the upper arm; probably, as a rule, the angle should be rather more than a right angle.

CHAPTER VII.

SPRAINS AND DISLOCATIONS.

A DISLOCATION is, as its name implies, a slipping out of place. One bone is separated, by violence, from its attachment to its fellow; is tilted out of the socket which it properly occupies, and is then said to be dislocated. This injury is accompanied by more or less stretching and tearing of the tough, fibrous textures which keep bones in their proper position.

A *Sprain* is usually a very painful, and sometimes a serious, thing, and may be defined as a dislocation begun, but not completed; that is, the bones entering into the formation of a joint are violently separated, the ligaments torn or much stretched, but there is no actual persistent displacement of the services of the respective bones.

To speak of *sprains* first. The joints in which these injuries most frequently happen are the wrist and ankle; they are usually consequent upon some sudden and unnatural movement of the joint, followed by aching pain and more or less swelling; but the bony points, and their relations, one to another, will be, on comparing the injured with the uninjured joint, found to be precisely the same. Sprains must be treated by *thorough rest*. If the wrist be injured, a

sling must be constantly worn; if the ankle, the patient must lie or sit with his leg *lying flat and immovable* on a couch or stool; but whether wrist or ankle, it must not hang down.

The immediate and continuous application of cold, by the employment of irrigation, will prevent much effusion into the injured joint, and also prevent the occurrence of acute inflammation. This should be kept up more or less regularly for some two or three days, and then a bandage wet with cold water may be closely applied. When pain has quite subsided, and the sprained joint is simply weak, much good may be obtained by casing it with strips of soap plaster, each one as it is put on slightly overlapping the preceding one, so as to limit the range of movement, and afford an efficient and continual support.

If there should be much pain, and this be not relieved by cold and rest, the application of leeches, ten to twenty, will very probably give relief. Let their removal be followed by a large warm bread poultice, so as to encourage the bleeding.

But at the outset, the sufferer from a sprained wrist or ankle should be reminded that the injury will be very slow in passing quite away. The joint will remain weak, slightly swollen, and in some pain, it may be, even for a long time, in spite of all remedial measures. Surgical experience thoroughly confirms, in this case, the popular dictum, "that a bad sprain is worse than a broken bone."

Dislocations. — These injuries can be recognized by three principal symptoms.

Deformity. — An alteration in shape as compared with the opposite side of the body. The limb affected

will be altered in length; it may be shorter or longer than in its natural state.

Loss of Usual Movements of the Joint. — A bystander may seize the limb and move it at the cost of some pain to the patient, though this even will be in limited area; but the sufferer himself will be found, on inquiry, to have the power of performing some only of the ordinary movements. The arm, if the shoulder be dislocated, cannot be raised upwards, as before.

Absence of Signs which Indicate a Fracture. — There will be no alteration in the appearance of the shaft of a bone; no crackling, grating, or rubbing of the fractured ends, surgically called crepitus. Absence, also, of an excessive and abnormal mobility of the injured part.

An attempt should always be made to obtain, at once, efficient medical aid. The reduction of a dislocation, even within some hours, is not a matter of very great difficulty, but the trouble increases materially with lapse of time.

To give relief to suffering, and to prevent the occurrence of inflammation before the arrival of a medical man, the injured part may be treated by cold applications — local cold bathing, or the application of thin folds of linen, wetted with cold water. Rest and support, as directed for a sprain, will also be available. Leeches in small numbers, and applied frequently, may be resorted to, and warm poultices or fomentations, when they come off.

It is not possible to describe with unmistakable clearness the several forms of dislocation, or the modes to be employed for their reduction; therefore, as a rule, the injury must be left alone, if medical aid

cannot be had ; but the patient may be very anxious that something should be done, and the dislocation may have happened more than once before. In this latter case, the injury will be much more easy to replace ; and the patient, too, having a lively recollection of the means used on former occasions, will be able to speak of and to direct present manipulations.

These remarks apply with much force to *dislocations of the lower jaw*.

This is an unpleasing accident, and may occur on wide yawning, laughing, etc., to any one who has once had the accident before. The mouth is wide open, and cannot be closed ; the chin thrown forward ; speech and swallowing very difficult, and in front of the ear there will be felt an unnatural hollow. *One* side only may be dislocated, and in this case the chin will be turned to the opposite side ; *both* sides may be out of place, and the chin will then be central.

The thumbs of the operator, protected with a napkin, should be placed within the mouth, in a line with, indeed, directly upon, the upper surfaces of the back teeth of the lower jaw ; then he must press his thumbs downwards and backwards, while at the same moment he elevates the chin with the little and ring finger of each hand. If these movements are made with sufficient force, and at the same moment, the jaw will slip into its place.

When reduction has been effected, the parts must be kept in comparative rest for some days. The patient should live on good soup, etc., or other food easily swallowed, and not needing mastication, and the jaw should be supported by a cravat passed beneath it, so

as to restrain movement, the ends of the cravat being tied at the top of the head.

Dislocation of the Neck.

This is caused by a heavy fall on the side of the head. The head is turned to one side, and fixed. In all such cases, *immediate action* is *absolutely necessary*.

The person should be placed upon the back, then the operator should plant one knee against each shoulder, grasp the head firmly, pull gently, and at the same time turn the head into its proper place.

Dislocation of the Shoulder-joint.

In this form of injury the arm-bone is displaced from its contact with the blade-bone. It is not uncommon; and having once occurred, is very liable to happen again; under these conditions, too, the replacing the bone is not usually very difficult.

The arm, in the most usual form of the accident, cannot be moved without pain — the shoulder seems flattened, the elbow stands out from the side, cannot be made to touch the ribs, nor can it be brought up easily to a level with the shoulder; the head of the bone, rounded in shape, may be felt in the arm-pit, if the fingers are pushed well up while the arm is slightly moved outwards.

Reduction may be effected in this mode. The operator sits on the edge of the bed on which the patient has been laid flat on his back, and on the side corresponding to the injured joint. Having removed his

boot, he should place the heel of the right foot in the patient's armpit, if the right shoulder be the one disabled, and *vice versa*, and then, taking hold of the wrist with both hands, he must pull steadily downwards, while the heel fills up the armpit and forms a



Fig. 15. Dislocation of Shoulder-joint.

fixed point. The attention of the patient should be

diverted by some question or exclamation, and after the extension has been continued for a little time, he may be required to turn round, and while he is trying to do this, a sudden, strong pull may be given, and at the same time the heel (previously placed in the armpit) brought quickly, as with a jerk, against the head of the bone, and it will most probably slip into its place without much difficulty.

Dislocation of the Thigh-Bone at the Hip-joint.

The limb will be shortened and the toes turned in, so as to rest on the opposite foot, in the most ordinary form of this accident. If it has occurred more than once in the same person, it will be worth the trial to attempt the reduction on the same principles as those sketched out for the shoulder, the heel of the operator being well fixed in the fork, and extension made from the ankle or knee.

This plan can only succeed when the operator is taller and stronger than his patient. If the accident happen to a muscular man, this mode of procedure may be tried:—

Pass a strong towel round the upper part of the thigh; fix this so that its direction of drawing is upwards and rather outwards; then extend the limb in a directly downward direction, by employing the muscular power of two or three assistants, who pull from a towel fixed round the limb, either just at the ankle or above the knee. The extension should be continued for some little time, until the muscles of the limb are wearied, and then the head of the thigh-bone will probably slip in.

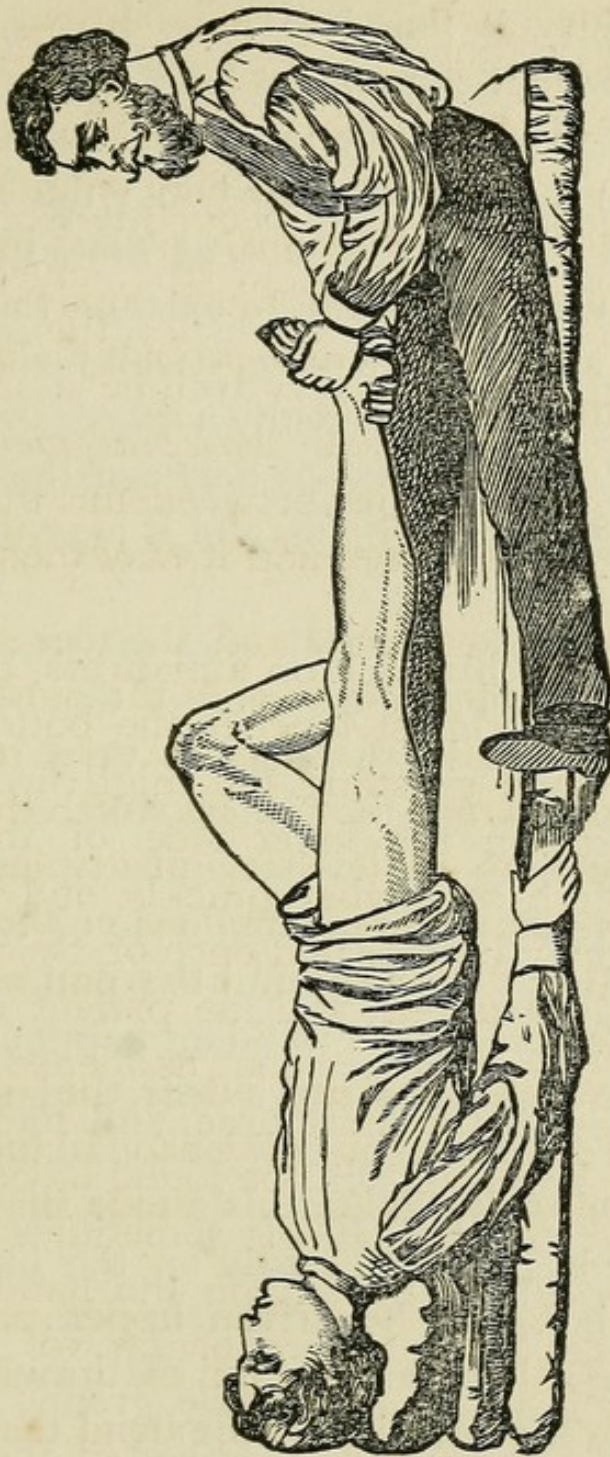


Fig. 16. Dislocation of Hip-joint.

*Displacement of the Internal Cartilage of the
Knee-joint.*

It may happen from an accidental twist of the leg in walking, or a fall with the leg bent underneath,

that some injury is found to have happened to the knee. The patient cannot get his heel to the ground, is not unable to walk, but is obliged to walk on his toes, and with the knee slightly bent; the whole joint is not painful, and there is not, at first, much swelling—a tender point is found to exist on the inner face of the joint, and there may very well be a little puffiness here. The injury is really a *displacement of the plate of cartilage* which lies between the thigh-bone and the head of the leg-bone, and it may thus be rectified:—

Put the patient on his back on a mattress, bend the knee until the heel almost touches the buttock, and then, with one hand grasping the thigh firmly, and making pressure on the inner side of the knee, straighten the limb somewhat quickly and forcibly. The manœuvre may be repeated once or twice, but it will almost always succeed, and the patient can then walk as well as before the accident happened.

Subsequent rest for a short time, and the wearing of a bandage or knee-cap, will be found advisable.

Dislocation of the Elbow.—It sometimes happens that a person by falling heavily on the hands causes one or both bones to be driven backward. Let the patient sit on a low seat, or on the ground, and the operator place his knee inside the bend of the elbow, then grasp the arm firmly with one hand, above the elbow, and the wrist with the other, or if another person is present, let him take the wrist. Pull firmly, and at the same time bend the arm gently, and the bone will in most cases return to its place without difficulty.

Dislocation of the Thumb or Finger.—These are somewhat difficult to manage, and should be taken to a surgeon at once. But if this cannot be done, the following method may be tried: If possible, get a strong person to hold the wrist, or if alone with the person, he should lie on the floor, or ground. Rub a little powdered chalk or resin on the hand, to prevent slipping. Pull steadily at the thumb or finger, as the case may be, for some time; then turn it backwards, and at the same time push it into its place with the other hand.

Dislocation of the Wrist, Knee, or Ankle.—Whenever these occur, they should, if possible, be placed under the care of a surgeon at once; but if, under the circumstances, this is not practicable, the same principle of action described in connection with other cases can be employed. By continuing the extension (pulling) for some time, the muscles of the limb will become wearied and relaxed, so that the bone, or joint, can be pushed back again into its place.

CHAPTER VIII.

INJURIES TO THE EYE, ETC.

Foreign Bodies in the Eye.

IT not unfrequently occurs that foreign bodies, such as specks of dirt, or coal, cinders, particles of metal breaking off from tools in the workman's hands, or pieces of stone or emery flying from rapidly-revolving wheels, saw-filings, or saw-dust, etc., etc., find a lodgement in the eye; and adhere to the eyeball, or lie concealed under the lids. Covering the inner sides of the lids, and the front of the eyeball, is a sack-like, delicate, and very vascular membrane, which the anatomists call the conjunctiva.

Lay your finger on the cheek, and draw the lower lid gently down while the person looks as much upwards as possible, and you will see about the whole extent of the lower portion of the conjunctiva, and thus, if any foreign substance is there, it will be readily detected, and easily wiped away with a fold of a soft rag or handkerchief. Both lids have a piece of cartilage in them to stiffen them, like pasteboard, and keep them fitting close to the eyeball. The upper portion of this conjunctival sack can only be seen by turning over the upper lid. The way to do this is to

let the person look down with the eyes closed.* Take hold of the lashes with one hand, and apply a pencil, or some small, round, smooth object over the lid above the globe, lift the lashes out and up, warning the person to still keep looking down. The lid will suddenly turn over with a little spring from the bending of the cartilage. In this way nearly the whole of the conjunctival sack will be exposed, and any foreign body wiped away as above described. But suppose no friend or oculist is by us to do this. The next best thing is to take hold of the lashes of the upper lid, and draw it forwards and downwards over the lower one, blowing the nose violently with the other hand at the same time.

Any foreign substance does not long remain on the conjunctiva covering the globe, but is soon rubbed off on to the lids, and will there be found. You see the necessity of the cornea being clear, to let in the light; therefore any foreign substance *on* or *in* it, is of much more importance to sight; for when it is rough or opaque, seeing is like putting ground glass in our windows, and then trying to look out of doors. Substances which blow into the eye, and adhere to the cornea, do not generally penetrate its tissue, and are, therefore, pretty readily removed. No hard substance should be used to do this with, as considerable damage may be done to the eye, and great pain caused.

Take a strip of paper not stiffer than ordinary writing paper, about a quarter of an inch wide, and roll it up as if you were going to make a candle-lighter. Look at the lower end, and you see it comes to a point. With this point now you may safely attempt to remove any foreign substance from the cornea.

The tears which will flow soften the paper, and prevent injury to the delicate covering membrane of the cornea. But it is very different with foreign substances flying into the eye with force, such as pieces of metal, particles of emery or stone, or thorns from plants, etc. These penetrate the cornea, and hold in as fast as a nail in a pine board. In the various factories and workshops there is generally a "boss," or some one of the hands, who has a local reputation for successfully removing such articles. When these simply adhere to the eyeball or lids, they are, as I said, frequently removed by some fellow-workman, who has acquired some skill or reputation for this sort of thing in the particular establishment where the accident occurs. When, however, any foreign body has penetrated the delicate skin lining the lids and eyeball, or the clear part of the eye in front, the cornea, then their removal is quite another and more difficult manœuvre. Only too many days' work are lost, and even eyes destroyed, by ignorant and unskilled "working" on such "somethings" in the eye. If the method I have previously described does not succeed in removing a foreign body that is *stuck* in the eyeball, the best surgical advice should be sought at once, as every hour of delay is one of increasing danger.

A single fold of cotton or linen, wet with cold water and laid over the eye, is all that is needed till surgical help can be obtained. Let us here emphatically warn you never to put an "eyestone" in the eye to remove a foreign substance, notwithstanding you may find them for sale in some of our so-called respectable apothecary shops.

Never put on leeches near the eye, but on the tem-

ple, just in front of the hair. *Never poultice the eye.* If it has been injured, seek the best surgical advice, and, till it is obtained, put only over the eye a rag wet with cold water. If the *eyeball* has been injured, cut, or broken, or anything thrust or flown into it, a solution may be dropped into it, three or four times a day, of *four grains of sulphate of atropia in an ounce of distilled or pure water*, or belladonna ointment may be rubbed on over the brow. Both of these dilate the pupil, and atropine is the oculist's sheet-anchor. Remember — .

“A blind man is a poor man, and blind a poor man is;
For the former seeth no man, and the latter no man sees.”

Injuries of the Lids.

The bites of many insects, the poison of some plants, such as *arnica*, now so frequently prescribed and used, will cause the lids to swell up so as to close the eye, and frighten the patient and those about him. But there is generally no injury done to the eyeball, and hence no danger for the sight. Blows over the eyes, a “black eye,” produce also swelling of the lids not in any way dangerous, provided the eyeball has not been pressed or crushed. When the lids have been bruised or cut by injury, surgical advice should, if possible, be always at once sought, since the separated parts must be brought most carefully together, that they may unite, and prevent what so often occurs, namely, deformity, discomfort, or destruction of the globe from the loss of its necessary protection, the lids. All burns on the outside of the lids are especially dangerous, because the contractions of the skin,

after healing, may distort the natural and necessary curve of the eyelids, to adapt them to the eyeball.

Injuries of the Eyeball.

Some sudden, violent exertion, sneezing, coughing, a blow, etc., may cause an effusion of blood under the delicate membrane covering the eyeball, and change the white of the eye to a blood-red, giving rise to anxiety. Such an effusion, if it is only this, is of no consequence, as the blood becomes absorbed in a few days. Cold water is the only application which should be made. Poultices, spirit and water, arnica, quack medicines, etc., only retard nature's cure, and may do irreparable mischief.

Blows on the eyeball that have not caused any apparent harm — I mean no bruise, or redness, or noticeable change — frequently produce extreme pain, and temporary dimness, or loss of sight, with inability to bear the light. The tears flow rapidly, and the lid is kept tightly closed. If this state of things last but a few hours, the eyeball may escape harm; but such an eye should be most carefully watched, as dangerous inflammation steals on most insidiously. Such blows come from corks flying from bottles, pieces of wood jumping from the block, balls thrown in games, etc.

Shaking of the eyeball from a blow may, without any visible external injury, be followed by immediate, partial, or total loss of sight, and the pupil be seen dilated. A continuance of this state of things for more than an hour or two, points to some internal injury which the concussion has produced, a rupture or tearing of the iris, or some of the internal mem-

branes, or a dislocation of the crystalline lens. Sometimes a blow on the eye causes temporary pain, which passing off, and the sight remaining sufficiently good, the person continues his occupation, and in a few days is suddenly stricken down with intense pain and inflammation in the globe, that only too rapidly destroys the eye forever. In such a case some accident has occurred within the eyeball, which the ophthalmoscope would have revealed to the surgeon, and proper treatment have prevented from resulting in harm. The only treatment for all these forms of injury till proper advice can be obtained, is a rag wet with cold water laid over the eye, and possibly one or two leeches applied to the temple, not near the eye, but back just in front of where the hair grows; with, of course, rest and quiet on the sofa or bed, and avoidance of light and the use of the eyes. Such a plan of treatment would often save eyes now only too frequently sacrificed.

Penetrating Wounds and Rupture of the Eyeball.

When the eyeball has been hurt by a blow, or cut open by a sharp instrument or fragment of metal or glass, immediate proper care is necessary, which the ophthalmic surgeon alone can give. Poultices and washes of all forms generally succeed in destroying the eyeball. The crystalline lens may be partially or wholly dislocated, requiring an operation for its removal, or it may have been touched by the instrument causing the injury, and then become gradually opaque, thus forming a cataract that only an operation can remove. Blows and cuts may also produce bleeding

within the eyeball, even when this is not apparently much, if any, injured. Such effusion of blood is seen by the ophthalmoscope inside of the globe ; and although sight may be temporarily lost, the surgeon will be enabled to tell his patient that useful vision can once more be restored.

Wounds and cuts of the white of the eye and the clear part in front, or cornea, are likely to allow the colored portion of the eye, which is a delicate vascular membrane, to protrude, and become fastened in the wound. The pupil is then partly closed or drawn together, so that an operation becomes necessary to free the iris, or form an artificial pupil. Simple puncture of the clear part of the eye, or cornea, when caused by a fine sharp instrument, such as a needle, rarely does much harm in the end, although all such wounds need the best of care for a short time. When the cornea has been cut through by some rough or irregular instrument, there is much more danger. In all such cases, without the best surgical advice, nothing should be applied to the eye except a rag kept wet with cold water, and the person should remain quiet in a darkened room till assistance can be obtained. Proper treatment the first day may save the eye.

Injury of the Cornea.

When the transparent part of the eye has been scraped or dug by a blow from a switch, some foreign body flying against it, or the scratch of a child's fingernail — a baby in arms, for instance — it is a much more serious accident than the person so injured would imagine. Generally the pain is so great and so con-

tinued, that they soon seek advice, and are fortunate if that which they obtain is correct. Till proper advice can be sought, it is safest to avoid the light, to keep the eye quiet, but not bandaged or poulticed; a rag wet with cold water over it, and, if proper surgical advice cannot be soon had, a solution of one grain of sulphate of atropia in two teaspoonfuls of distilled water, may be dropped into the eye three or four times a day. Atropia, or belladonna, as it is called, dilates the pupil, and makes the "sight look large," as people say; it also blurs the sight for near objects. This is, however, only temporary, while the medicine is being used, and disappears in a week or less after the application is stopped. Sulphate of atropia is a *poison*, and care must be taken not to let a solution of it run into the mouth, or leave the bottle round for children to get hold of, or grown people to mistake for something else. These sort of injuries of the cornea are apt to produce, like ulcerations from disease, a white opaque spot, which is, in reality, a scar, and cannot be removed by art.

Foreign Bodies within the Eyeball.

The most dangerous thing which can happen to the eye, is the lodgement of some foreign body within it. Amongst all classes of mechanics, such injuries are constantly occurring, from chips of metal flying off from the instruments they are using, or the work on which they are employed. So also in the stone-workers, metal-grinders, polishers, engineers, etc.; all of whom are thrown out of employment by the loss of an eye, and reduced from comparatively affluent circum-

stances to almost beggary. Amongst children, pieces of percussion-caps, pins from the ends of darts, small stones or shot from bow-guns, etc., only too often strike the eye with sufficient force to penetrate and destroy the globe. It is impossible for a person himself, or those about him, to decide whether a piece of iron, or other foreign body, has entered the eyeball and *remains* there. This the ophthalmic surgeon alone can do, by looking into the eye, through the pupil, by means of a peculiar mirror, called the ophthalmoscope. He can then see the foreign body, and perhaps make a drawing of it, which the patient may recognize as corresponding to the portion which has flown off from the instrument or tool he was using at the time he met with the injury. Now this deciding whether or not the foreign body is in the eyeball, is *all-important*. If it has merely cut a hole in the eyeball, and dropped back out of the eye, the patient may escape with perfect vision; but if it, no matter how small, has entered the eyeball, there is not once chance in a million of the eye's being saved, and an even chance whether the other eye is not also lost, from what is called sympathetic inflammation attacking it. In many parts of the system, a foreign body, like a needle, splinter, bullet, etc., may remain perfectly quiet, and do no harm. Not so, however, in the eye; here it is fatal to sight in the injured, and perhaps the other eye also. Its presence may at once destroy the eye by exciting acute and active inflammation. After such destruction, and when only a stump of the eye is left with the foreign substance in it, this remaining portion of the globe is liable, at any time, to repeated attacks of inflammation. Even if the sound eye has not been previously attacked, in some

one of these outbursts of inflammation in the stump, this insidious and dangerous sympathetic trouble comes on; taking at first the form of *weakness*, inability to bear the light, slight pain, and discomfort. These symptoms increase in severity, and a gradual change takes place — the eye degenerating, and sight being lost. The only remedy for such sympathetic inflammation is the removal of the cause, namely, the eye, or the stump, with the foreign body in it. This, if done too late, may not save the second eye. *An eye with a foreign substance within the eyeball, never should be allowed to remain.* The present operation for its removal is simple and effective, and the subsequent wearing of an artificial eye so facilitated, that there need be, in these days of ether, no fear or dread of the operation. It is only in the rarest instances that a foreign body has been removed from within the eyeball. A glass eye can be worn, generally, within a fortnight of the removal of a useless or painful stump or globe. Cold water, and the solution of atropine, above alluded to, are all that can be recommended besides quiet, and protection from light, before proper surgical assistance is obtained.

Gunpowder Injuries.

The effect of these I must explain, as they come from fireworks, guns, pistols, blasts, etc. There are different ways in which injury is done the eye. The concussion of the air near the eye may destroy or greatly injure it. The lids and the globe may be burnt by the powder. The grains of powder may be driven into the skin of the lids and external tissues. And finally, the grains of powder may be driven with force enough

to penetrate the globe, and thereby cause such results as I spoke of from foreign bodies within the eyeball. No time should ever be lost in obtaining the best surgical aid for a person whose face and eyes are injured by a powder explosion; and, in the meantime, sweet oil applied to the lids and eyes, a rag wet with cold water over these, and the dropping in every four hours of the solution of atropia, before alluded to, are all I can recommend. When seen early, much of the powder adhering to the eyeball can be removed, saving, thereby, perhaps, the organ, and sight with it. I cannot speak too strongly *against* the use of *everything else* than what I have described. I have seen so many eyes sacrificed to prejudice, ignorance, and stupidity, that I here again warn against poultices, washes, eye-waters, and all descriptions of patent medicines, *outside* or *inside*.

Burns, etc.

Burns from lime, in the form of mortar or plaster, are extremely dangerous; for, although they may not destroy the eyeball, they render the cornea opaque where they come in contact with it, and hence produce partial or total blindness. Moreover, they burn the inner side of the lids, and thereby cause these to adhere to the eyeball by fleshy growths, which it is almost impossible afterwards to separate so as to allow the globe to move with the necessary freedom. Olive oil dropped into the eye after it has been washed out with a weak solution of vinegar, may be used before surgical advice can be obtained.

When any of the strong acids, like sulphuric or nitric, have come in contact with the eye, they act

chemically on the tissues, and hence their danger. Immediately after such an accident, the eye can be syringed out with a solution of five grains of bicarbonate of potash to two tablespoonfuls of water, and sweet oil dropped between the lids. When some strong alkali, like caustic potash, or soda, has been dashed into the eye, we may wash it out with a teaspoonful of vinegar in two tablespoonfuls of water.

Scalds from hot water, and burns from liquid metals, etc., can be treated more or less like the same injuries in other parts of the body. Sweet oil can be dropped on and in the eye, and rags wet with it laid on the outside of the lids. The best surgical advice is needed at once. Avoid charlatans and advertising quacks.

Foreign Bodies in the Orbit.

I might relate wonderful cases of this character to frighten my readers with, but that is not my purpose in any way. I simply desire to teach them how to assist in saving their eyes when injured. All sorts of things are by force sometimes driven into the orbit; like umbrella tips and handles, nails, hooks, keys, door-latches, etc. The great danger is the bursting of the eyeball, and the tearing of its surroundings, the stretching or wounding of the optic nerve, the injury done the walls of the orbit, either by fracture or by the foreign body penetrating them. The inflammation excited by a foreign body in the orbit may prove fatal by extending to the brain. But, on the other hand, the most extraordinary cases have occurred in ophthalmic practice, where large foreign bodies have remained within the orbit without the patient's knowledge, and, when removed, the eye saved and sight restored.

CHAPTER IX.

INJURIES TO THE EAR, ETC.

ALL sorts of substances are sometimes put into the ear by children, who do it to themselves or to each other, in ignorant play. If every parent and teacher warned his children against doing this it would not be a useless precaution. When the accident happens, the chief danger is that of undue haste and violence. Such bodies should be removed by syringing with warm water alone, and no attempt should be made to lay hold of them or move them in any other way. The passage of the ear is closed by a delicate membrane, and hence the reason for this rule. When no severe pain follows, no alarm need be felt. It is important that the substance should be removed as speedily as is quite safe, but there need never be impatience; nor should disappointment be felt if syringing needs to be repeated on many days before it effects its end. It will almost invariably succeed at last in the hands of a medical man, and is most effective if the ear is turned downwards and syringed from below.

Now and then an insect gets into the ear and causes great pain; the way to get rid of it is to pour a little olive oil into the ear. This suffocates the insect.

But, as prevention is always better than cure, we note a few of the most fruitful causes of injury and deafness which may be avoided.

There are several things very commonly done, which ought to be carefully avoided.

Children's ears ought never to be boxed. The passage of the ear is closed by a thin membrane, especially adapted to be influenced by every impulse of the air, and with nothing but the air to support it internally. What, then, can be more likely to injure this membrane than a sudden and forcible compression of the air in front of it? If any one designed to break or overstretch the membrane, he could scarcely devise a more effective means than to bring the hand suddenly and forcibly down upon the passage of the ear, thus driving the air violently before it, with no possibility for its escape but by the membrane giving way. And far too often it does give way, especially if, from any previous disease, it has been weakened. Many children are made deaf by boxes on the ear in this way. Nor is this the only way: if there is one thing which does the nerve of hearing more harm than almost any other, it is a sudden jar or shock. Children and grown persons alike may be entirely deafened by falls or heavy blows upon the head. And boxing the ears produces a similar effect, though more slowly, and in less degree. It tends to dull the sensibility of the nerve, even if it does not hurt the membrane. Children should never be blamed for being inattentive, until it has been found out whether they are not a little deaf. This is easily done by placing them at a few yards' distance, and trying whether they can understand what is said to them in a rather low tone of voice.

Each ear should be tried, while the other is stopped by the finger. Very many children are blamed and punished for inattention, when they really do not hear. And there is nothing at once more cruel and more hurtful to the character of children than to be found fault with for what is really their misfortune. Three things should be remembered here: 1. That slight degrees of deafness, often lasting only for a time, are very common among children, especially during or after colds. 2. That a slight deafness, which does not prevent a person from hearing when he is expecting to be spoken to, will make him very dull to what he is not expecting; and, 3. That there is a kind of deafness in which a person can hear pretty well while listening, but is really very hard of hearing when not listening.

The chief avoidable cause of deafness is catching cold. There are some kinds of cold especially hurtful to the ear. One is sitting with the ear exposed to a side wind. We should always *face* the wind; then, if we are not chilled, it is hard to have too much of it. Another hurtful thing is letting rain or sleet drive into the ear.

Another source of danger to the ear, arises from the very precautions which are sometimes taken against those last mentioned. Nothing is more natural than to protect the ear against cold by covering it with a piece of cotton wool; and this is most useful if it is done only on occasions of special exposure, as when a person is compelled to encounter a driving storm, or has to receive on one side of the head the force of a cutting wind. But it is astonishing in how many cases the cotton wool thus used, instead of being re-

moved from the ear when the need for it has passed, is pushed down into the passage, and remains there, forming itself an obstruction to hearing, and becoming the cause of other mischiefs. Three separate pieces have sometimes been found thus pushed down, one upon the other. Paper rolled up, which is also used for protecting the ear when cotton wool is not at hand, is still more irritating when it is thus left unremoved. The way to avoid this accident, besides being careful not to forget, is to use a large piece of the wool, and to place it over, rather than in, the passage.

It should be remembered, that constantly covering up the ear is adapted to injure it. On the whole, men, in whom the ear is habitually exposed, suffer if anything less from ear-disease than women, in whom it is so often covered. Nor can the "hat" be held an unsafe head-dress in this respect for the latter sex. But it is important that there should not be frequent changes, especially in cold weather, from a head-dress which covers, to one which exposes the ear. It is better that the air should always have free access to it; but if this has not been the case, the summer should be chosen to make the change.

There is another danger arising from boyish sports. Snowballs sometimes strike the ear, and the snow remaining in it, sets up inflammation. This danger is increased by a practice which should be inadmissible, of mixing small stones with the snow, which thus effect a lodgement in the ear.

Among the causes of injury to the ear must be reckoned bathing. Swimming and floating are attended with a certain danger from the difficulty of preventing the entrance of water into the ear in those

positions. No *cold* fluid should ever enter the ear; cold water is always more or less irritating; warm water is less objectionable, but even this is not free from disadvantage. A knowledge of the danger is a sufficient guard. To be safe, it is only necessary to keep the water from entering the ear. If this cannot be accomplished otherwise, the head may be covered. It should be added, however, that *wet hair*, whether from bathing or washing, may be a cause of deafness if it be suffered to dry by itself. Whenever wetted, the hair should be wiped till it is fairly dry. Nor ought the practice of moistening the hair with water to make it curl, to pass without remonstrance. To leave wet hair about the ears is to run great risk of injuring them. In the washing of children, too, care should be taken that all the little folds of the outer ear are carefully dried, and gently, with a soft towel.

But I come now to what is probably the most frequent way in which the ear is impaired: that is, by the attempt to clean them. It ought to be understood that the passage of the ear does not require cleaning by us. Nature undertakes that task, and in the healthy state fulfils it perfectly. Her means for cleaning the ear is *the wax*. Perhaps the reader has never wondered what becomes of the ear-wax. I will tell him. It dries up into thin fine scales, and these peel off one by one from the surface of the passage, and fall out imperceptibly, leaving behind them a perfectly clean, smooth surface. In health the passage of the ear is never dirty; but if we attempt to clean it, we infallibly make it so. Here — by a strange lack of justice, as it would seem, which, however, has no doubt a deep justice at the bottom — the best people, those who love

cleanliness, suffer most, and good and careful nurses do a mischief negligent ones avoid. Washing the ear out with soap and water is bad; it keeps the wax moist when it ought to become dry and scaly, increases its quantity unduly, and makes it absorb the dust with which the air always abounds. But the most hurtful thing is introducing the corner of the towel screwed up, and twisting it round. This does more harm to ears than all other mistakes together. It drives down the wax upon the membrane much more than it gets it out. Let any one who doubts this make a tube like the passage, especially with the curves which it possesses; let him put a thin membrane at one end, smear its inner surface with a substance like the ear-wax, and then try to get it out so by a towel! But this plan does much more mischief than merely pressing down the wax. It irritates the passage, and makes it cast off small flakes of skin, which dry up, and become extremely hard, and these also are pressed down upon the membrane. Often it is not only deafness which ensues, but pain and inflammation, and then matter is formed which the hard mass prevents from escaping, and the membrane becomes diseased, and worse may follow. *The ear should never be cleaned out with the screwed-up corner of a towel.* Washing should extend only to the outer surface, as far as the finger can reach.

Ear-picks, again, are bad. If there is any desire to use them, it shows that the ear is unhealthy, and it wants soothing, not picking. And there is another danger from introducing any solid thing into the ear. The hand may get a push, and it may go too far. Many is the membrane that has thus been broken by a

bodkin. Sportsmen sometimes have their membrane pierced by turning suddenly while getting through a hedge; and it even happens that a boy at school may put a pen close to another's ear, in play, and call to him to make him turn his head, and the pen pierces the membrane. Very loud sounds may cause deafness, too. It is well to stop the ears when exposed to loud sounds, if possible; also to avoid belfries when the bells are about to ring. A man who was once shut up in one became stone deaf before the peal was done. The sound of guns is more injurious to those who are in a confined space with them, and also if the mouth be open. Injury from loud sounds, also, is much more likely to occur if they are unexpected; for if they are anticipated, the membrane is prepared for them, without our knowledge, by its muscles. Sometimes these loud sounds rupture the membrane; sometimes they deaden the nerve; the former is the least evil.

It is a bad practice, also, to put cotton-wool, soaked in laudanum or chloroform, into the ear for the relief of toothache. It may be sometimes effectual, for the nervous connection between the teeth and the ear is very close. But the ear is far too delicate and valuable an organ to be used as a medium for the application of strong remedies for disorders of other and less important parts; and laudanum, and more especially chloroform, are powerful irritants. The teeth should be looked after in and for themselves, and if toothache spreads to the ear, that is the more reason for taking them thoroughly in hand; for prolonged pain in the head, arising from the teeth, may itself injure the hearing. When a child's ear becomes painful, as it so often

does, everything should be done to soothe it, and all strong irritating applications should be avoided. Pieces of hot fig or onion should not be put in ; but warm flannels should be applied, with poppy fomentation, if the pain does not soon subside.

It is often very hard, even for medical men, to ascertain that the cause of a young child's distress is seated in the ear, and frequently a sudden discharge from it, with a cessation of pain, first reveals the secret of a mysterious attack, which has really been an inflammation of the drum. If children cry habitually when their ears are washed, that should not be neglected ; there is, most likely, some cause of pain. Many membranes are destroyed from discharges which take place during "teething." Whenever there is a discharge of matter from the ear, it would be right to use warm water night and morning, and so, at least, to try and keep it clean.

CHAPTER X.

EFFECTS OF COLD AND HEAT. — FROZEN LIMBS,
ETC. — SUNSTROKE.

Cold, Exposure to, the Effects of.

WHEN cold is severe, and there has been long-continued exposure to its influence, the effects on the human body are distinctive and well marked. The cooling of the external surface is accompanied by internal congestion of the principal organs; the skin becomes pale, the muscles stiffened, and the circulation in the external parts is much lessened. The nervous system then is affected: the sufferer will complain of giddiness, and inability to guide himself, and then of extreme weariness and desire to sleep. If this wish be indulged, complete stupor and death will only too certainly follow.

All these symptoms approach with far greater rapidity in those who have their nervous energies depressed by intoxication, or by long-continued exertions which have induced exhaustion. Insufficient supply of food will also materially influence the injurious effects of severe cold.

If the cold be very severe, freezing, and absolute death of some portion of the frame, may occur. If

any considerable extent be frozen, it is very unlikely that the vitality of the part can be recovered.

Local injury may, however, thus happen and be repaired. The nose, ears, face, or extremities may suffer—the part first becomes dull, bluish red in color, the power of moving it is soon lost, and sensation then disappears; the natural color is changed, and the damaged portion is thoroughly pale, shrivelled, and tallowy-looking.

When the general effects of cold are manifested on the system as a whole, by insensibility and torpor, the treatment must commence :

1. By subjecting the body to a temperature only a few degrees above the freezing point. For, if taken immediately to a fire, or warm room, the life may perhaps be destroyed. Some convenient room without a fire, which feels very cold, or a barn, or shed, or even the open air, may do very well, and is far better than running the very great risk of too warm a room at first.

2. The clothes should be cautiously removed, and friction commenced with snow over the trunk, and parts which have suffered most. The rubbing is the material agent for good: this may be continued after a short time, by flannels.

3. The body may be placed in a bath of cold water if snow be not at hand, and friction even there still kept up. By the addition of water, a little warmer each time, the temperature of the surface may be increased.

4. If there be return of surface warmth, or an attempt at respiration occur, the body should at once be

removed from the bath, or the snow-covering taken away, and the surface then wiped thoroughly dry.

5. Artificial respiration may be set up, according to the directions given in the chapter on Drowning.

6. The bed in which the patient is placed should, in the first place, be cold, and the temperature of the room may be raised by degrees until it reaches a fairly genial warmth. Some nourishment should be given so soon as the patient can swallow; warm milk, broth, a little warm wine and water, etc.

But prevention is always better than cure. Hence a word of advice just here will not be inappropriate. Whenever persons are so situated as to be exposed to intense cold, and not able to reach a place of shelter, they should, *on the first indication* of failing strength, look out for a snow-drift, sheltered from the wind by a hill, or some other object, and at once make a hole in it large enough for the body, and then crawl into it. The snow will constitute a comparatively safe shelter from the wind and cold. It is not at all uncommon for the native Indian, when overtaken by the storm, to roll himself snugly in his blanket, and to lie down and let the snow cover him up, and is thus saved from being frozen to death.

Another effect of cold, which is sometimes called being *nipped*, is usually caused by standing or walking against a very cold wind. Persons suffering from this cause, are sometimes seized with severe pain in the bowels, drawn together with cramp. The hands swollen, and with intense pain in the head. The treatment should be similar in principle to that already described. A warm room, or fire, should be avoided at first, and warmth gradually restored. A

little warm ginger, or capsicum tea, or even common tea or coffee, may be taken in small quantities at short intervals, and, after warmth is somewhat restored, hot flannels may be applied to the parts which are most painful.

If local effects only have resulted from the exposure to cold, for example, the extremities and projecting parts of the body — hands, feet, nose, and ears — the part affected should be covered with snow, and well rubbed, or let the patient rub himself, if possible, for the exertion will give a greater impetus to the blood, and assist in keeping him warm, or a bath of very cold water may be employed, until the power of movement and sensation in slight measure returns. This rubbing must be continued until the parts affected are restored to something like the natural color, and the frost all extracted. And even when this point of recovery has been reached, friction with flannels, continued for some time, will be of great advantage.

After this has been done, the parts may be anointed well with sweet oil, or lard, or lime-water and oil, and well wrapped up with flannel.

The change from cold to heat must not be too sudden, or mortification, local death of the part which has been injured, will certainly follow. The part will then have lost its vitality, and must separate. But this process, especially if it involves much of the surface or the whole circumference of a limb, will entail great risk to life, and can only be treated by qualified medical skill.

Chilblains are simply frost-bites of a milder form, and arise from the difficulty of the blood, thickened from cold, passing through the vessels. They

are not dangerous, though somewhat troublesome, and, if neglected, sometimes cause sores which last through the winter. To prevent them, wear warm clothing on the hands and feet, keep up a proper circulation by exercise, and do not bring them suddenly from cold to heat. When chilblains are formed, but not broken, take lead lotion and camphorated spirits, equal parts, and rub them well two or three times a day, or take camphorated spirits and soap liniment, or sweet oil and spirits of turpentine, or make an ointment of dry, powdered mustard and lard, a teaspoonful of the mustard to an ounce of lard, or use Goulard's Extract, and rub as above. But if the skin is broken, none of the above should be used. Make an ointment of pure, sweet mutton tallow, and powdered chalk, by stirring the chalk into the tallow when warm. Spread on a piece of linen, and apply as in the case of a burn, or use zinc ointment, which may be procured from the druggist.

Influence of Heat — Sunstroke, etc.

The general effects of the opposite condition, extreme heat, deserve notice.

When there is exposure to the rays of a hot sun, as in the tropics, for example, especially if the head be not properly protected, the conditions of heat — apoplexy, coup-de-soleil, or sunstroke — speedily show themselves. And during some of the hot days of summer, cases of the same kind frequently occur in this country. More especially may these symptoms be expected to occur in those who are depressed from much physical exertion, or from defective or improper supply of food.

So soldiers on a march under a vertical sun, carrying heavy knapsacks, accoutrements, etc., are the most frequent sufferers. Indulgence in alcoholic liquors certainly increases the tendency to the affection.

The man most probably first becomes faint and giddy, turns pale, and may fall down insensible. As the symptoms advance, there is flushing of the face, with increased action of the heart and labored breathing, and then thorough coma, upon which, in a few hours, death will supervene. Slighter symptoms may occur, and either pass away under judicious treatment, or slowly merge into the severer form.

Treatment.

The patient should be removed into a cool place, if possible, or at least some shade should be procured, so as to ward off the intense heat.

The head should be kept cool with wet cloths, only applied of thin material and in a single layer, so that constant evaporation may go on from the wetted surface, so keeping the head thoroughly cool.

It is neither necessary nor advisable that bleeding should be resorted to without positive proof of its necessity. This doubtful point can only be decided by medical authority; and, in the absence of qualified assistance, the lancet should certainly not be used.

As the affection appears, from the testimony of well-skilled observers, to depend on shock to the nervous system and depression of nervous energy, so those remedial measures are best which rouse the exhausted tissues to fresh action, and supply support to them. Hence, so soon as the patient can swallow, stimulants,

wine, brandy and water, etc., with nourishing food, should be given.

Many more recoveries are noted under this plan of treatment than when blood has been abstracted, and means employed which tend to diminish, more or less directly, general nerve-power.

CHAPTER XI.

CHOKING, ETC.

THE foreign bodies with which one may have to deal as causing obstructions in the throat and gullet, are usually derived from food taken into the mouth. A piece of half-masticated meat may stick in the throat between the arches of the palate, or may be arrested from its bulk as it passes down the gullet. The involuntary efforts to swallow, which are excited by the presence of this mass, only serve to increase the evil, and unless relief be afforded, actual suffocation may result from this simple accident.

A violent slap with the open hand, between the shoulders, thereby causing a compression of the air in the chest, will frequently effect a dislodgement. But if this fail, the next thing to be done is to place the patient where a good light can fall from a window or a lamp into his mouth, and then boldly and quickly examine the back of the throat and the base of the tongue by passing the forefinger well down — very possibly the foreign mass may be touched at once, and extracted by the fingers with comparative ease. The procedure will be facilitated by first directing that the tongue be put forward well out of the mouth, and there retained, being grasped by the patient's own fingers; covered

with a handkerchief. This manœuvre mechanically draws forward the arches of the palate, and allows the operator to sweep his finger well across from one side to the other of the throat.

A fish-bone may be the offending body, and this may be caught and extracted in the same mode. No pincers or forceps are half so good for the purpose as the finger and thumb of a resolute bystander, who knows what he has to do, and has nerve to do it.

But the mass may have gone lower down, quite into the canal of the œsophagus, and there, although it will not produce such marked symptoms, or threaten danger to life by arrest of breathing, it will still produce great discomfort. If a piece of meat of some size be so lodged, the drinking copious draughts of water and swallowing them rapidly will very possibly cause it to pass on into the stomach. Should this fail, it may be well to try the effect of an inverted action, and attempt to expel the mass by producing vomiting. For this purpose the patient must take an emetic; and the safest compound is the sulphate of zinc, dissolving twenty grains of this in a small quantity of warm water for a single dose. This quantity of the salt may be repeated in ten minutes, and vomiting will almost certainly follow speedily. In the absence of this drug, common salt, or mustard dissolved in water, or olive oil, may be resorted to, to serve the same end.

If vomiting fails to eject the plug from the gullet, it is imperative that mechanical means be tried for its removal; but these should be intrusted only to a medical man. If, however, it be impossible to obtain skilled assistance, the operator may obtain a slip of whalebone, and tie firmly to one end of it a knob of

sponge about the size of a marble. This will form an *extempore* probang, and it may be thus used: The patient should throw his head well back, and put the tongue out while the operator introduces the probang, sponge end first, into the throat, so as to touch the further wall, and then pushes it on down the gullet, so as to displace and send before it the foreign mass into the stomach.

Fish-bones or pins, caught in the gullet, may be treated by swallowing some pulpy mass — masticated bread, etc. — so that this may entangle and carry onwards the sharp-pointed substance.

Under none of the above conditions should medical assistance be neglected — the cases even in the slighter forms need prompt and skilled attention. More serious instances occur where irregular and awkwardly-shaped substances — a plate with artificial teeth, for example — can only be extracted by a surgical operation.

Foreign bodies may take a different course, and make their way into some portion of the air-passages, there exciting much more disturbance than if they had passed into the gullet. If they lie simply across the throat at the entrance of the larynx, it will be sometimes possible to remove them by the finger and thumb introduced as above directed; more frequently, however, it is found that the substances pass on into the larynx, the organ for the production of voice sounds, or into the windpipe and its divisions. The symptoms of such an accident will be unmistakable: local pain, soreness, difficulty of breathing, with continual harsh cough, ending not impossibly in the production of acute inflammation and subsequent death. It will rarely be possible to procure the expulsion of any for-

eign body when it has once fairly entered the air-passages, except by the surgical operation of opening the larynx or windpipe ; when the artificial wound is made sufficiently large the substance will usually be coughed up, or it may be removed by forceps.

This remedial measure can only be carried out by a surgeon ; and if such skilled aid cannot be obtained, the removal of the offending material can hardly be looked for. In some few instances the following means have proved effectual : —

Fasten the patient firmly to the seat and back of a common strong chair, so that by fastening cords to the chair, and running them over a pulley or beam, it will be possible to invert the individual head downwards, at all events for a few seconds at a time. The chest or back may, at the same time, be smartly knocked, so as mechanically to dislodge, if possible, the impacted substance. Much will, of course, depend upon the size of the foreign body and the position which it may have reached ; but the plan has been so far successful, that it is, to say the least of it, quite worthy of a careful and prolonged trial. It is not possible that a non-professional person could successfully carry out the operation of opening the windpipe.

CHAPTER XII.

SUFFOCATION: ITS CAUSES AND THEIR TREATMENT.

SUFFOCATION, or, to use the medical term, asphyxia, is produced by those causes which impede, or effectually prevent, the entrance of air into the lungs. Thus it may be due to hanging, strangulation, or to drowning — these causes cutting off at once the air-supply; or to breathing certain gases which do not support life, but which, by hindering the access of pure air, induce a more tedious suffocation.

The blood is, under normal circumstances, sent from the large chamber on the right side of the heart to the lungs, to be there purified and freshly supplied with oxygen from the inspired air. If the supply be inadequate, the blood current, dark in color and loaded with carbon, passes on through the left side of the heart, and through the arteries, to the brain and the body generally. It carries to these several tissues not life, but poison; and as the air-supply is more and more lessened, or even quite suppressed, each succeeding blood-wave is still less freed from carbon. The nervous system is narcotized by this impure blood, the heart, lacking its usual stimulus, ceases to act, and the processes, both of circulation and respiration, are stopped.

Suffocation may depend on —

I. — Hanging, or Strangulation.

The element of danger and death in this condition is the mechanical occlusion of the windpipe, insuring the shutting off of the entrance of atmospheric air. This may be gradual or immediate — usually the latter — and insensibility and apparent death follow very rapidly.

By the speedy adoption of certain measures, life may, however, in a fair proportion of cases, be preserved.

The first requirement is to remove, with all haste, the rope or handkerchief which may have been tied round the neck. Cut the person down, if he be found still hanging, and place him gently on the ground, with the head somewhat raised above the level of the trunk. Remove the ligature from the neck, and, after doing this, any article of dress, handkerchief, shirt-collar, etc., which may be pressing upon the neck or chest.

Artificial respiration, according to the rules given (*see Drowning*), may be put in practice.

Cold water may be dashed on the chest, and the surface directly afterwards should be rubbed dry with warm cloths. This same plan of friction may be extended, if there be sufficient help available, to the trunk and limbs, and should be carried out, without intermission, for some considerable time. Should there be much lividity about the face and chest, it will be wise to take away some blood. This may be done by an unskilled person easily, if he immerses one hand of the patient in warm water, and cuts

through, with a sharp knife or a razor, some of the prominent veins on the back of the hand. The bleeding may be stopped by pressure with the finger. Or, again, leeches may be applied to the temples, twenty or thirty in number.

In all these instances of suspended animation it is of especial importance that no time should be lost in a search for further or for more reliable assistance. The person first on the spot must carry out the above directions to the best of his ability, and without delay.

II. — Drowning.

The actual condition is here due to the same cause as in death by hanging — the non-entrance of air into the lungs. If repeated attempts at breathing be made while the patient is in the water, air will escape from the chest, and water may pass into the air-passages; but this intrusion of water is no necessary condition of drowning.

Hence no attempts need be made to remove the water from the chest, by rolling the body, face downwards, on a barrel, etc.

The body should be taken to shelter, or to some room not too warm, so soon as it is removed from the water, the clothes removed as quickly as possible, and the surface dried with warm cloths; then, at once, artificial respiration should be instituted.

The measure, however, of most apparent value, judging from recorded cases, in restoring the apparently dead from drowning, would seem to have been the steady and long-continued employment of friction of the whole surface of the body. Relays of attend-

ants should be provided, and at regular intervals the changes of alternate sets should be made. Perseverance is imperative.

III.—Breathing of Foul Air, Gases which cannot Support Respiration, etc.

Carbonic acid gas, evolved from the burning of charcoal in rooms not provided with a chimney, or manufactured in the process of fermentation in breweries, or as existing in deep wells, excavations, etc., may be named as one of the compounds which may induce stifling, or suffocation and death. Sulphuretted hydrogen, as generated by the decomposition of organic bodies, night-soil, etc., is equally operative in bringing on such symptoms.

The first point to be attended to is the removal of the sufferer, not only from the noxious atmosphere which he has been inhaling, but also to as pure an air as can be had. Expose him, therefore, to a free current of air outside the house, if the weather be fit, and dash cold water upon the face and chest; then have artificial respiration, if there be absolute arrest of breathing movements, employed, and for some time. Friction of the general surface may be combined with these measures, and, so soon as the patient can swallow, some hot coffee, or brandy and water, may be administered.

The probabilities of recovery are greater in this form of suffocation than either in cases of hanging or drowning. The arrest of the circulation is not always complete, and, though insensibility may remain for a time (simulating the effects of a dose of narcotic poison),

yet, in most cases of comparatively short exposure, recovery may be hoped for.

When noxious vapors are suspected, a lighted candle should be let down into the well, shaft, or vault in question, and if the light becomes dim, then danger to human life may be apprehended; and in order to dissipate or dispel the bad air, lower a bucket, as for water, several times, bringing the bucket to the surface each time, and emptying it; in this way, the foul air may be disengaged, or it may be dispelled by firing a pistol or gun into it several times, the reverberation of sound having a similar effect.

Headache, drowsiness, faintness, and even stupor, have their causes in the want of proper air for respiration. In children exposed to the influence of an impure atmosphere, sickness will very readily come on. Hence the golden rule, that no apartment is fit for continuous human habitation which does not allow of free ingress of fresh and egress of spoiled air, or which has not, if these conditions be unfulfilled, a very much larger cubic capacity than that required for the number of people present.

The smallest cubic space for each adult should be, in bed-room or sitting-room, four hundred and fifty cubic feet.

Directions for Restoring the Apparently Dead.

In cases of apparent death, either from drowning or other suffocation, send immediately for medical assistance, blankets, and dry clothing, but proceed to treat the patient *instantly* on the spot, in the open air, with the face downward; whether on shore or afloat, exposing the face, neck, and chest to the wind,

except in severe weather, and removing all tight clothing from the neck and chest, especially the braces.

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 Breathing* must be commenced immediately and energetically, and persevered in for one or two hours, or until a medical man has pronounced that life is extinct. Efforts to promote *Warmth* and *Circulation*, beyond removing the wet clothes and drying the skin, must not be made until the first appearance of natural breathing; for if circulation of the blood be induced before breathing has recommenced, the restoration to life will be endangered.

To Restore Breathing.

(According to Dr. Hall's method.)

To Clear the Throat.—Place the patient on the floor or ground, with the face downwards, and one of the arms under the forehead, in which position all fluids will more readily escape by the mouth, and the tongue itself will fall forward, leaving the entrance into the windpipe free. Assist this operation by wiping and cleansing the mouth.

If satisfactory breathing commences, use the treatment described below to promote Warmth. If there be only slight breathing, or no breathing, or if the breathing fail, then,—

To Excite Breathing.—Turn the patient well and instantly on the side, supporting the head, and excite the nostrils with snuff, hartshorn, and smelling-salts,

or tickle the throat with a feather, etc., if they are at hand. Rub the chest and face warm, and dash cold water, or cold and hot water alternately, on them. If there be no success, lose not a moment, but instantly,—

To Imitate Breathing,—Replace the patient on the face, raising and supporting the chest well on a folded coat or other article of dress. Turn the body very gently on the side and a little beyond, and then briskly on the face, back again, repeating these measures cautiously, efficiently, and perseveringly, about fifteen times in the minute, or once every four or five seconds, occasionally varying the side. (See *figs. 1 and 2.*)

On each occasion that the body is replaced on the face, make uniform but efficient pressure, with brisk movement, on the back, between and below the shoulder-blades or bones on each side, removing the pressure immediately before turning the body on the side.

During the whole of the operations let one person attend solely to the movements of the head and of the arm placed under it.

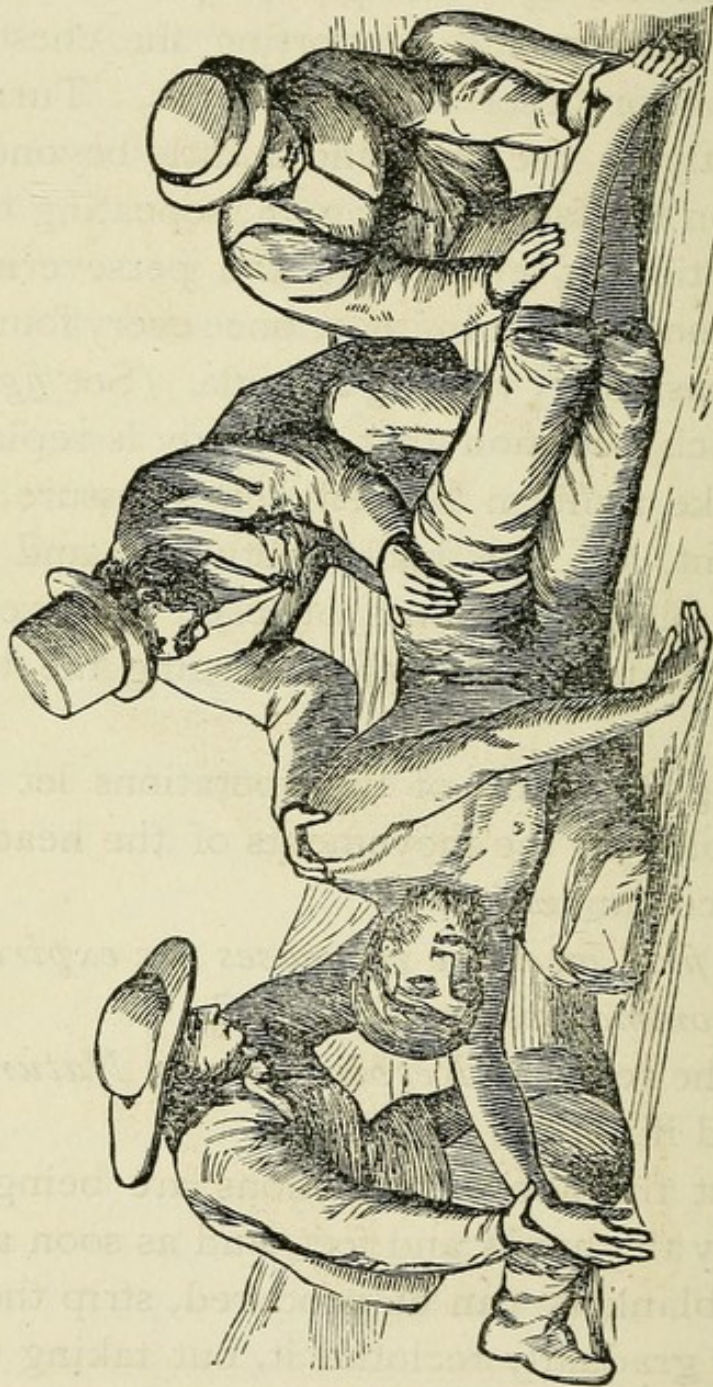
[*The first measure increases the expiration — the second commences inspiration.*]

* * * The result is *Respiration*, or *Natural Breathing*; and if not too late, *Life*.

Whilst the above operations are being proceeded with, dry the hands and feet, and as soon as dry clothing or blankets can be procured, strip the body, and cover or gradually re clothe it, but taking care not to interfere with the efforts to restore breathing.

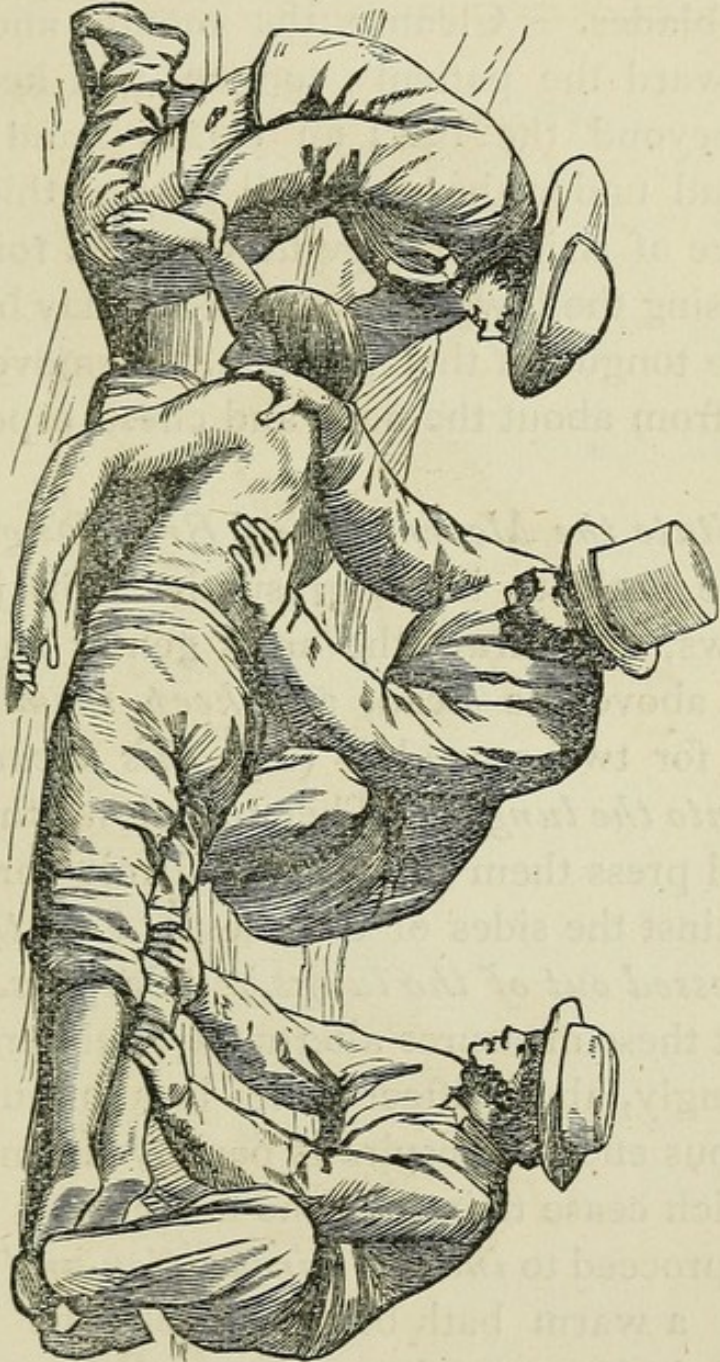
Should these efforts not prove successful in the course of from two to five minutes, proceed to imitate breathing by Dr. SILVESTER'S method, as follows:—

These two Illustrations, Nos. 1 and 2, show the position of the Body during the employment of Dr. Marshall Hall's Method of Inducing Respiration.



No. 1. INSPIRATION.

By placing the patient on the chest, the weight of the body forces the air out; when turned on the side, this pressure is removed, and air enters the chest.



No. 2. EXPIRATION.

Place the patient on the back on a flat surface, inclined a little upwards from the feet; raise and support the head and shoulders on a small, firm cushion or folded article of dress, placed under the shoulder-blades. Cleanse the mouth and nostrils, draw forward the patient's tongue, and keep it projecting beyond the lips; an elastic band over the tongue and under the chin will answer this purpose, or a piece of string or tape may be tied round them, or, by raising the lower jaw, the teeth may be made to retain the tongue in that position. Remove all tight clothing from about the neck and chest, especially the braces.

To imitate the Movements of Breathing.— Standing at the patient's head, grasp the arms just above the elbows, and draw the arms gently and steadily upwards above the head, and *keep them stretched* upwards for two seconds. (*By this means air is drawn into the lungs.*) Then turn down the patient's arms, and press them gently and firmly for two seconds, against the sides of the chest. (*By this means air is pressed out of the lungs.*) (See *figs. 3 and 4.*)

Repeat these measures alternately, deliberately, and perseveringly, about fifteen times in a minute, until a spontaneous effort to respire is perceived, immediately upon which cease to imitate the movements of breathing, and proceed to *induce Circulation and Warmth.*

Should a warm bath be procurable, the body may be placed in it up to the neck, continuing to imitate the movements of breathing. Raise the body in twenty seconds in a sitting position, and dash cold water against the chest and face, and pass ammonia

under the nose. The patient should not be kept in the warm bath longer than five or six minutes.

Treatment after Natural Breathing has been Restored.

To Promote Warmth and Circulation. — Wrap the patient in dry blankets; commence rubbing the limbs upwards, with firm grasping pressure and energy, using handkerchiefs, flannels, etc. [*By this measure the blood is propelled along the veins towards the heart.*]

The friction must be continued under the blanket or over the dry clothing.

Promote the warmth of the body by the application of hot flannels, bottles, or bladders of hot water, heated bricks, etc., to the pit of the stomach, the armpits, between the thighs, and to the soles of the feet.

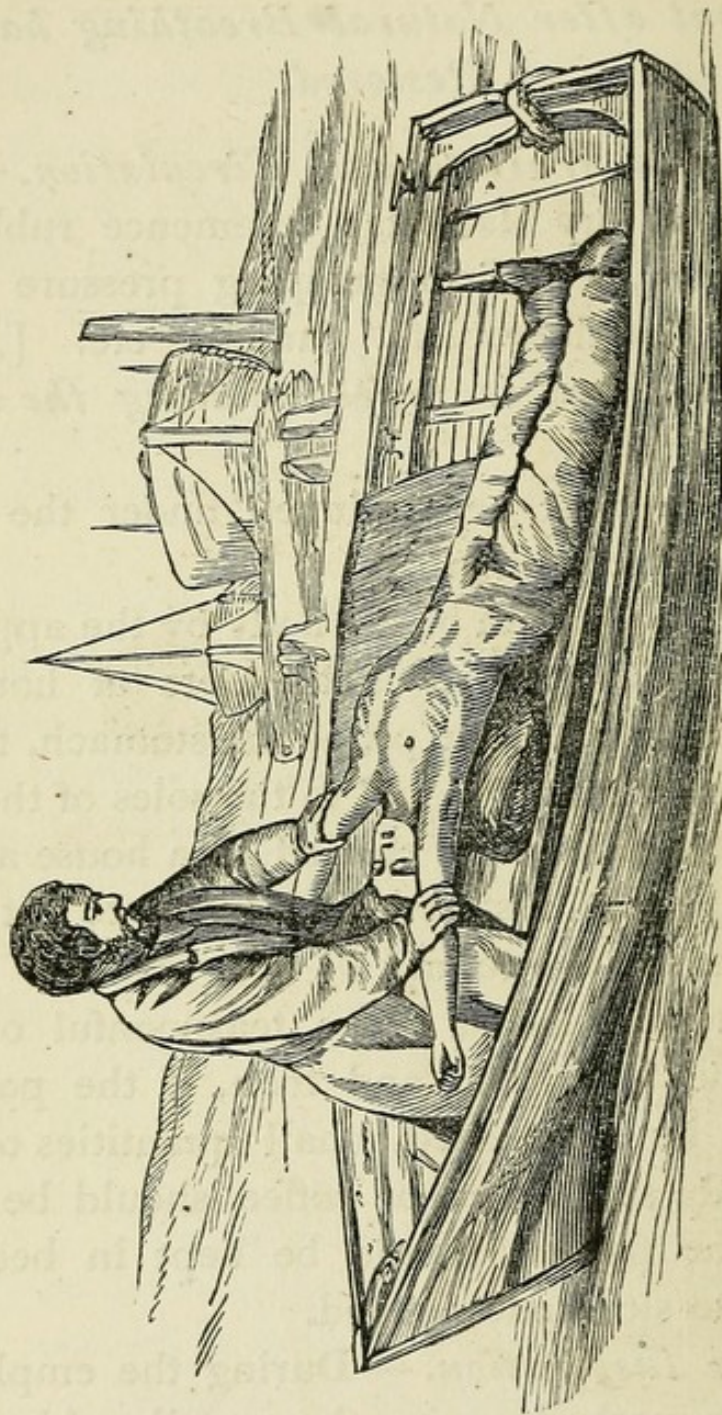
If the patient has been carried to a house after respiration has been restored, be careful to let the air play freely about the room.

On the restoration of life, a teaspoonful of warm water should be given; and then, if the power of swallowing have returned, small quantities of wine, warm brandy and water, or coffee, should be administered. The patient should be kept in bed, and a disposition to sleep encouraged.

To excite Inspiration. — During the employment of the above method excite the nostrils with snuff or smelling-salts, or tickle the throat with a feather. Rub the chest and face briskly, and dash cold and hot water alternately on them.

General Observations. — The above treatment

These two illustrations, Nos. 3 and 4, show the position of the Body during the employment of Dr. Silvester's Method of inducing Respiration.



No. 3. INSPIRATION.

No. 4. EXPIRATION.



should be persevered in for some hours, as it is an erroneous opinion that persons are irrecoverable because life does not soon make its appearance, persons having been restored after persevering for many hours.

Appearances which generally accompany Death.

— Breathing and the heart's action cease entirely; the eyelids are generally half closed; the pupils dilated; the jaws clenched; the fingers semi-contracted; the tongue approaches to the under edges of the lips, and these, as well as the nostrils, are covered with a frothy mucus. Coldness and pallor of surface increase.

Cautions. — Prevent unnecessary crowding of persons round the body, especially if in an apartment.

Avoid rough usage, and do not allow the body to remain on the back unless the tongue is secured.

Under no circumstances hold the body up by the feet.

On no account place the body in a warm bath unless under medical direction, and even then it should only be employed as a momentary excitant.

CHAPTER XIII.

POISONS AND POISONING.

THERE are so many substances of a poisonous nature which are now used in manufactures, amongst farmers, and also in private houses, that accidental poisoning is not a very unfrequent occurrence. These poisonous compounds may be introduced into the body by various routes, not only by the natural openings, but also by applications to the skin, by inhalation of vapors, etc. According to the different character of the poisons, so will the symptoms resulting on their reception into the system essentially differ.

If poison has been taken, the symptoms appear suddenly while the person is in health.

The symptoms appear, too, soon after a meal, or within some short time after the taking either of food or medicine. This condition is only valuable where the introduction of the poisonous agent by the skin, by inhalation, etc., is by other circumstances excluded.

If several persons partake of the same meal, and the food contain poison, all must be expected to suffer in the same way.

The noxious agent may be discovered in the food taken, or in the matters vomited.

The above four statements are, with certain limitations, such as coincident illness, etc., to be taken into consideration in inquiring into and treating a case of suspected poisoning; thus poisons do not lie dormant in the system for several hours before their effect is produced, nor are there many diseases which affect the system by sudden invasion, without some premonitory indications of disturbed health.

Using the term poisoning in its wide sense, the following classes, into which, for convenience, injurious materials may be divided, will embrace the most usual manifestations:

I. — *Irritant Poisons*: Such are —

1. *Acids*. — Sulphuric acid (oil of vitriol), nitric acid (aqua fortis), hydrochloric acid (spirit of salt); also oxalic, acetic, and tartaric acids, which are of vegetable origin.

2. *Alkalies*. — Potash, soda, ammonia, and their carbonates.

3. *Metallic Compounds*. — Arsenic, arsenious acid, antimony, mercury, lead, copper, zinc, etc., etc., together with some of their more soluble salts.

4. *Vegetable Irritants*. — Aloes, gamboge, etc., etc.

II. — *Narcotic Poisons*:

1. Opium, prussic acid, henbane, etc.

2. Alcohol in any of its common forms; wine, spirits, malt liquors, etc.

3. As vapors inhaled and so affecting the system. Carbonic acid, sulphuretted hydrogen, chloroform, etc.

III. — *Animal Poisons, Poisoned Wounds, etc.*
Wounds from bites of mad dogs, snake-bites, etc.

IV. — *Animal Poisons, as taken into the system*
by tainted or decomposed meat, bad fish, sausages,
etc.

V. — *Accidental swallowing of Noxious Things,*
such as leeches, Spanish flies, etc., etc.

The above list might be subdivided, and so rendered more true and more complete; but the simple form will give sufficiently clear data for action in a case of emergency from the taking of poison, and in the absence of medical advice.

TREATMENT OF POISONING.

General Remarks.

If there be the certainty that poison has been taken, the measures for relief must be put in practice without any delay. Even a few minutes more or less may make the turning-point of saving or losing life, and therefore even though medical assistance have been sent for at once, the attendant will be thoroughly justified in commencing that plan of treatment which may appear to him the most judicious.

To some of the poisons direct chemical antidotes can be found, the resulting compound being, if not indeed absolutely without influence on the human stomach, far less noxious than the original dose. Fortunately, these counter-poisons can be found in almost every household, and they should be given at once.

Others again, of the substances in the list just given, are best prevented from causing serious injury, by the

prompt procuring of free vomiting. This may be effected by mechanically tickling the back of the throat with a feather, by large draughts of warm salt and water, or warm mustard and water; and more satisfactory still by an emetic of ipecacuanha wine, one or two table-spoonfuls for a dose, or by the dissolving in a wine-glass of warm water some twenty or thirty grains of sulphate of zinc, repeating any of these emetic draughts once or more until the full effect is produced. Do not give the antimonial preparations, tartar emetic, etc.; they are far too depressing in their action, and not well under control.

It may be, however, that neither by chemical action nor by vomiting can the poison well be dealt with, and in these conditions the use of mucilaginous and oily drinks may envelop the noxious material, and in a measure lessen the resulting damage; such, for instance, as milk, barley-water, white of eggs, salad oil, etc. Any of these draughts are well available for this purpose.

These soothing and demulcent things are also well suited for the treatment of the after stages of the irritation, when the poison has been in great measure removed or neutralized.

The patient, after he may have escaped the first imminent danger, will undergo great risk from subsequent changes. It is only possible for a non-professional to treat such a state by soothing remedies; to insist on thorough quietude, and to relieve internal pain by the external and frequent application of hot poultices, fomentations, or mustard plasters. The food should be very plain and simple, and given frequently rather than in large quantities.

SPECIAL RULES FOR TREATMENT OF THE DIFFERENT KINDS OF POISONS.

I. — *Irritant Poisons.*

1. ACIDS. — If acids have been taken, the local action on the lips, mouth, and throat, will usually leave little doubt as to the agent which has been swallowed. Sulphuric acid chars and blackens the tissues; nitric and hydrochloric acids equally destroy the parts they are in contact with, leaving respectively a yellowish or whitish condition of the damaged textures, and a horribly burning, sour pain, from the mouth downwards.

Give no emetics in this case. The alkalies are the appropriate remedies: soda or potash dissolved in water, or weak ley from wood ashes, or lime-water, should be given freely. In their absence, the ordinary carbonate or fluid magnesia may be used, or common whiting or chalk, suspended in water, will answer the same good purpose. These should be administered in repeated draughts for some little time, and followed by some mucilaginous and soothing fluid, — such as milk or barley-water.

2. ALKALIES. — For the treatment of poisoning by the alkalies, potash, soda, etc., acids must be employed. Take vinegar, diluted with half its bulk of water; citric or tartaric acid, also dissolved in water. Lemon-juice, sour cider, sour fruit, or beer, if at all acid, may be employed.

Soothing and demulcent remedies, such as olive oil, linseed, or any wholesome oil, or mucilage of slippery elm, gum-arabic, or linseed tea, should be

employed, after the poison has been fairly neutralized by the acid mixtures.

3. METALLIC POISONS. — The antidotes for metallic poisons must be chosen according to the special substance which has been swallowed. As a rule, however, the attempt to provoke vomiting may well be made by the administration of an emetic of sulphate of zinc.

ARSENIC. — If arsenic has been taken, a mixture of milk and lime-water, or soda-water in equal parts, should be freely drunk. Large quantities of milk and raw eggs, or flour and water, or light magnesia diffused in water may be taken. Vomiting and retching will most probably follow on the taking of the poison; if not, as there will be much irritation of the stomach, emetics are best avoided. There is some reason to believe that common animal charcoal has sometimes, at least, been of service, and this might be tried. After any of the above remedies have been employed, a dose of castor oil will be found useful.

ANTIMONY. — Treatment same as for arsenic.

COPPER. — Treatment as above.

CORROSIVE SUBLIMATE. — The bichloride of mercury is most speedily and best treated by giving the albumen, or white part of eggs, and copious draughts of milk. In the absence of eggs, flour mixed with water may be given, and then linseed tea.

LUNAR CAUSTIC. *Treatment.* — Give a teaspoonful of common salt in a glass of water, and repeat in ten minutes. Then a dose of castor oil, and linseed tea, or barley water, for a drink.

ACETATE, OR SUGAR OF LEAD. — The best remedy is to give sulphuric acid (oil of vitriol), largely

diluted with water, or (as an emetic and antidote in one) the sulphate of zinc, twenty or thirty grains dissolved in a glass of warm water, and the dose repeated, once or more, until the full effect is produced.

It would be impossible to enumerate in small space the various metallic poisons; most of them, however, call for immediate emetics, and treatment in some one of the above-mentioned modes.

4. VEGETABLE IRRITANTS, such as aloes, gamboge, etc., may be treated by an early emetic, and by demulcent drinks, such as slippery elm, linseed tea, etc.; as a rule, they expend themselves by over-excessive action on the intestinal canal.

II. — *Narcotic or Stupefying Poisons*: Such as —

1. OPIUM AND ITS VARIOUS PREPARATIONS. — The treatment should commence by a smart emetic. The symptoms will be those of intense drowsiness, going on to heavy sleep, insensibility, and death, if much of the poisonous compound have entered into the circulation.

After an emetic, the pouring of cold water from some little height upon the head, neck, and shoulders, is often of service in rousing the patient; then apply mustard poultices to the calves of the legs, or to the feet. If the patient can swallow, give him hot and strong coffee, and expose him without hesitation to a free current of air. He may be able to walk, and if so, supported on each side, he should be kept moving, walking to and fro until the drowsiness has passed off, and he can sit down without going to sleep.

To children, more especially, even very small doses

of opium are dangerous ; the same treatment as named above should be used, combined with continuous friction of the limbs with warm flannels ; placing the child in a hot bath, and then sponging with cold water — anything, in short, that will serve the purpose of keeping up respiration to its normal condition, and of preventing sleep and stupor ; similar treatment is advisable for other vegetable sedatives.

2. PRUSSIC ACID.—If in *small* doses, ammonia, sal volatile and water, or strong coffee, may be given, and a bottle of smelling salts applied to the nose ; cold affusion upon the head and chest afterwards, rubbing dry with warm towels, and free access of air. These means are most likely to be of use, and may be vigorously put in practice to save life.

If in *large* doses, no kind of treatment will be of any good.

3. ALCOHOL taken into the stomach acts first as an excitant, and subsequently as a decided narcotic poison.

This condition is treated by the evacuation of the stomach, and by the employment of such remedies as will rouse the nervous system. Hot and strong coffee, externally-applied stimuli, and frictions perseveringly carried on, are the most reliable means. The warmth of the body must be steadily kept up.

4. NARCOTISM may be caused by the inhaling of certain gases, etc. ; the lungs are as effectual channels for the passage of poisons into the system as the stomach and intestinal canal. Alcohol can induce drunkenness by long exposure to its fumes alone ; and chloroform is a striking instance of a thoroughly sedative vapor.

III.—*Animal Poisons.—Poisoned Wounds.*

Animal poisons may be introduced into the system by the *stings of insects*. The sting of a wasp or bee may be visible, and if so, it should be extracted without delay; then apply to the wound a strong solution of ammonia in spirit or in water. In the absence of this agent, warm oil may be used. The same application of warm oil is much to be relied on in the stings or bites of tropical insects. There is commonly, too, general depression of the heart's action, with faintness, after severe stings; and to meet this some stimulant, brandy and water, for example, may be freely given.

SNAKE-BITES are most successfully treated by the free use of stimulants, to counteract the excessive prostration, with the local use of warm oil well rubbed into and around the injured point. It would seem that cauterizing the point where the fang has entered with nitric acid, or with an iron heated to a white heat, has been of service in some cases in preventing the advance of alarming symptoms. For this purpose a steel used for sharpening knives, or something of similar shape, can be used. Make the point red-hot—a white heat, if possible, and press it for a moment into the wound.

THE BITE OF A MAD DOG is the exciting cause of that fearful disease, hydrophobia. It may, if in a very exposed part, be possible to cut out with one sweep of a pen-knife the whole track of the animal's tooth; should a finger be bitten and torn much, it would be wise to chop the finger off at once, or cut it off at the knuckle with a knife. If the bite be in a part where cutting is not so easy, the only plan left is to burn the

whole line of the wound thoroughly by introducing a knitting needle, heated previously to a white heat, to the very bottom of the opening, so destroying the tissues with which the animal's saliva has been brought into direct contact.

DECOMPOSING ANIMAL MATTER from hides, etc., applied to some, however slightly abraded surface, so that absorption into the system takes place, has been found to cause a chain of very serious symptoms, and even death. Severe erysipelatous inflammation about and around the part affected soon sets in, with formation of large collections of matter, and the patient very probably sinks, from the depression and damage to his constitutional powers.

If such a case should occur, the non-professional must administer an abundance of wine and nourishment, and if matter come near the surface, it should be let out by a free incision.

IV.—*Animal Poisons taken into the System.—Bad Food.*

ANIMAL POISONS may again be received into the system through eating decomposed or tainted meat, sausages, etc.

The symptoms are usually those of an irritant poison: pain about the stomach, severe purging, and sometimes vomiting.

The offending material should be ejected from the stomach by the action of a sharp emetic, and the remaining symptoms must be treated by the application of external warmth, hot flannels on which some turpentine has been sprinkled, mustard poultices,

etc. The appropriate remedies must be used, if there should be well-marked faintness or depression.

V.—*Accidental Swallowing of Noxious Things.*

It may happen that *leeches* are swallowed in drinking water from some impure source. They may almost invariably be dislodged and killed by the taking large draughts of salt and water.

PIECES OF GLASS, COINS, ETC., may be inadvertently swallowed. Take no purgatives, etc., to expel the foreign body; nor, on the other hand, should acid drinks be used which may render soluble, and so, possibly, poisonous, a coin or mass of metal otherwise inert. If the material in question have fairly passed into the stomach, nature will promote its exit in her own quiet way, and much more satisfactory, too, than if the intestinal canal be tormented with drastic purgatives or unavailing emetic doses.

CHAPTER XIV.

THE TRANSPORT OF INJURED PERSONS AND INVALIDS.

IN all cases of accident or illness, the transport of the sufferer must only be decided on after the immediate and first assistance has been afforded in local dressings or remedial measures, and when those in charge are well satisfied that the proposed removal will not prove injurious. The latter consideration, however, will often need to be dismissed from the mind under conditions of urgency and haste, but where there is a choice of action full weight should be given to the demands of each special case before a removal to a greater or less distance be attempted.

1. *Transport without Special Means for the Purpose.*

If the sufferer, from wounds received in the battle-field, or from accidental injury, have escaped injury in his lower limbs, it may be quite possible for him in slight cases, after the first shock of the damage has passed by, to walk, at least some short distance. For this purpose he will need the assistance of one person, and may support himself by the arm of his attendant, either leaning his weight upon it, or having the

companion's arm thrown around his back or shoulders; or the sufferer may be taken bodily on the back of a strong and willing comrade.

Walking must not be allowed to the wounded man, if he have had loss of consciousness, with severe injury of the head, or if he have had penetrating wound of the chest, or excessive loss of blood.

It may happen that the injury is such that the sufferer cannot walk from damage to his lower limbs, or from the severity of the wound. In this case he must be carried, and if the distance be but short, and the patient light and slim, it will be possible that *one* attendant may carry him. This is best managed by taking the patient in a sitting posture in his arms, the right arm being placed under the thighs, clasping them well together, while the left arm is thrown round the trunk under the shoulders, the patient, meanwhile, having his right arm thrown round the neck of the assistant.

If *two* persons are available (and for a heavy man they must be had), the patient may still be carried in the sitting posture: the attendants, one on each side, clasping their right hands beneath the thighs, and with the left hands supporting the back, may so move him with fair ease. The patient may steady and support himself by grasping, with his hands, the shoulders of his bearers. Or, again, the attendants walking sideways may carry more firmly, by placing both hands, each one on his own side, beneath the thighs of the supported person, while the injured man supports his trunk by grasping with his own hands the shoulders of the bearers as before. The carriers may become tired, or it may seem well to

move the patient while he remains in a horizontal position, and then this plan may be adopted. One bearer lifting the head and shoulders may support the weight of the upper part of the trunk by placing his arms well under the armpits of the sufferer; the other helper may take charge of the lower limbs, so leaving the centre without direct support.

There is another mode of carrying a sufferer, whose injuries are not very serious, for a long distance. The patient sits upon a staff or musket, which is carried by two men, and slings his arms around theirs. Additional aid should, if possible, be had in any case where there may have been severe injury to the lower limbs, so that the damaged part may receive the sole attention of one person, and so be preserved from shaking or displacement.

It will frequently happen that this mode of transport is the only one available. If it should appear from the description to be inconvenient or awkward, there are yet certain positive advantages inseparable from the employment of a human litter at once intelligent and sympathizing.

2. *Transport by Litters.*

There are two kinds of litters — those which are *extempore*, made on the spot from any available materials, and those which have been constructed for this express purpose.

A litter should be strong, comfortable, — not liable to change its form, or the arrangement of its separate parts, and must be of such a size and shape that the sufferer can obtain full rest for his person.

In the accidents occurring in every-day life, it will

sometimes be sufficient for the removal of an injured person to make use of a simple frame made of four pieces of wood, just so long that, tied together at the corners, they constitute a flat surface, on which the patient may sit easily and firmly. The projecting ends of the poles then afford good hand-hold to two bearers, and across the poles, to support the weight, may be twisted some twigs, or small branches, or two or more cravat handkerchiefs may be tied across, for the same purpose.

A shutter, taken from a shop-window, or, in case of need, a door, lifted off its hinges, will also be available. Pieces of wood, too, of the required length, may be fastened together by some hasty appliances, twisted round and round, for instance, with a cart-rope, to hold them firm in the necessary position. If any of these appliances be used, the upper surface should be well packed, for the greater comfort of the invalid, with some small rolls of straw, great-coats, rugs, etc., or some clothes borrowed from the bystanders.

A very satisfactory litter, if a long transit be imperative, may be constructed by four poles — two eight feet long, two about four feet long. The two long poles, placed parallel with each other at a distance of about three feet, should be intersected by the two shorter poles, so as to leave an open space between the four poles, measuring about six feet by three feet. Having tied the poles firmly together where they cross one another, a blanket should be fastened securely to them, so as to make the whole resemble the frame and sacking of a bedstead. Upon this blanket the patient may be placed, and then the projecting ends of the

poles may be carried, according to circumstances, by two or by four assistants.

If a mattress be at hand, strongly made, either of hair or of straw, this may be used as a litter by putting a loop of rope through each corner, so that by these loops the litter may be conveniently carried.

On military service, good temporary litters may be made from muskets, a knapsack or two, and some cravat bandages, or knapsack straps.

If the injured man be able to sit up, two muskets will be sufficient. These should be so placed parallel to one another, that upon, or rather between, them a knapsack may be fastened as a seat, by passing the straps round the barrel and lock of the musket on each side. A cravat or handkerchief will aid in making the whole arrangement thoroughly firm, if it be tied firmly round one corner of the knapsack, and then brought across beneath the framework, to meet another handkerchief, which has already been fastened to the opposite corner.

Should it, however, be necessary to remove the wounded man in a horizontal position, four muskets will be required. They must be arranged as the poles are in the pole and blanket-litter named above, and the vacant space between the muskets, first well fastened together at their corners by straps or cravats, may then be filled up by some knapsacks, four or more, as may be required, closely bound to one another, and to the musket framework by straps and handkerchiefs. Upon these knapsacks so arranged some cloaks or coats may be thrown, so as to make a softer reclining-place for the sufferer.

Much care should be given to the placing of the

head in a slightly raised position, to the firm fixing of any fractured or dislocated limb, and to the due retention of any dressings which may have been applied to the injured part.

Both in lifting the litter, and in marching onwards with their burden, the bearers on each side must act together. The pace should be equal, and the step kept time to time, or the litter will be so much jarred by any irregular movement as to cause even serious annoyance to the patient.

3. *Transport by Vehicles.*

As with litters for transport, so with vehicles. One kind are specially constructed with this end in view, and so are supplied to armies in the field — of these no further mention will be made. Those, however, with which we have to deal, are vehicles originally made for other purposes.

It is essential that the carriage selected for this purpose should be firm and strong. If the choice be afforded, a four-wheeled carriage should be preferred to one with two wheels, and so, too, one with springs is better than one which has the body fixed directly and firmly upon the axle-tree. Little needs to be said about the use of all those light vehicles which are built for domestic convenience, and are easily moved from place to place.

The seats already existing in the interior of such carriages are at once available for wounded men who are able to keep the sitting posture; and, provided that there be sufficient length from end to end of the vehicle, one or more may be accommodated in the reclining position upon straw mattresses, rugs, etc.

CHAPTER XV.

RESUME OF DIRECTIONS FOR THE TREATMENT OF SEVERE ACCIDENTS OR INJURIES.

LET it be distinctly understood, that the immediate treatment of any severely injured person has a positive influence, not only on the early stages of the progress to recovery, but also on the whole treatment; whether this be in the hands of a non-professional attendant, or it be possible to obtain the skilled services of some medical man with but little delay.

1. Make out as exact a history as may be done from patient or bystanders.

2. Place the patient in a suitable position on side, in preference to placing him flat on his back. Remove clothing.

3. Cold water may be applied externally and given also internally. Stimulants should be avoided except in cases urgently demanding their administration.

4. Examine the patient gently and yet very carefully; very probably he will be lying on the ground, and if so, make the first examination without raising him: it is a bad practice hastily to pick a man up when he is faint from shock, and may have severe injury to some part of the frame. If the ground be damp, let some coat or cloak be quickly drawn under

the patient; then the dress must be loosened or removed, and this not by dragging it off the limbs, but by opening the seams, etc., with knife or scissors.

If there be *wound* incised or contused, wash it well with sponge or linen dipped in water, so as to arrest bleeding and remove foreign substances.

5. If there be bleeding to inconsiderable amount, it may even be encouraged; but if there be some quantity of blood pouring away, the directions given at length in Chapter IV., p. 43, must be strictly followed.

6. The wound, whether incised, contused, or inflicted by rifle bullet, must be treated in accordance with the rules given in Chapter V., p. 61. Immediate closure of the wound, if it be at all practicable, should be carried out by the means there recommended.

7. If it happen that there is *spraining* of some joint, the wounded part may at the moment be supported by putting on a bandage well wetted with cold water. If this bandage cannot conveniently be removed, it may be kept well wetted by pouring cold water upon it.

The patient may be in the house, and then thorough rest, with constant irrigation, drop by drop, of cold water, will usually be found preferable. (See Chapter II., p. 29, and Chapter VII., p. 92.)

8. *Dislocation* of some joint may have happened—rest must be insisted on, and until a surgeon can arrive, cold applications should be used to the injured part; the limb should be kept quiet either with bandaging or by position.

In the case of some few dislocations, an attempt at reduction may be made by a non-professional attend-

ant if no skilled assistance can be had. For these and further directions, see Chapter VII., p. 93.

9. If some bone have been *fractured*, the injured part must be so moved that it assumes, in a measure at least, its normal appearance, and then retained in a fairly easy position. The transport of the patient must be managed with much care.

If the upper extremity or the collar-bone be fractured in any part, the limb must be fastened to the body by some cravat bandages, or by several turns of a roller, so as to prevent jarring or shaking; a sling, too, in addition to the bandage, will afford some support.

If there be fracture of the lower extremity, the patient should first be placed on some convenient level surface, and the limb adjusted. As a temporary measure during transport, the injured part may be supported by fastening to it a large and soft pillow and cushion; the limb placed upon this may be retained in place by some turns of a roller embracing both cushion and limb.

Or, again, it will be quite possible and often best to make the sound limb the temporary splint for the other one. Interposing some thin pads between the knees and ankles, the operator may fasten both limbs together by two or more cravat bandages. In either case, it is of importance to support the foot, and to prevent its turning either in an inward or outward direction. (See Chapter VI., p. 72.)

For injuries to the eye and ear, see Chapter VIII., p. 102, and Chapter IX., p. 114.

Presence of Mind.—1. If a man faints, place him flat on his back and let him alone.

2. If any poison is swallowed, drink instantly half a glass of cold water with a heaping teaspoonful each of common salt and ground mustard stirred into it; this vomits as soon as it reaches the stomach; but for fear some of the poison may still remain, swallow the white of one or two raw eggs or drink a cup of strong coffee, these two being antidotes for a greater number of poisons than any dozen other articles known, with the advantage of their being always at hand; if not, a half-pint of sweet oil, or lamp oil, or "drippings," or melted butter or lard, are good substitutes, especially if they vomit quickly.

3. One of the best things to stop the bleeding of a moderate cut instantly, is to cover it profusely with flour and salt, half-and-half.

4. If the blood comes from a wound by jets or spirts, be quick, or the man will be dead in a few minutes, because an artery is severed; tie a handkerchief loosely around near the part *between the wound and the heart!* put a stick between the handkerchief and the skin, twist it round until the blood ceases to flow, and keep it there until the doctor comes; if in a position where the handkerchief cannot be used, press the thumb on a spot near the wound, *between* the wound and the heart; increase the pressure until the bleeding ceases; but do not lessen that pressure for an instant, until the physician arrives, so as to glue up the wound by the coagulation or hardening of the cooling blood.

5. If your clothes take fire, slide the hands down the dress, keeping them as close to the body as possible, at the same time sinking to the floor by bending the knees; this has a smothering effect on the flames;

if not extinguished, or a great headway is gotten, lie down on the floor, roll over and over, or, better, envelop yourself in a carpet, bed-cloth, or any garment you can get hold of, always preferring woollen.

CHAPTER XVI.

OF THE SIGNS OF REAL DEATH.

IT is needless to insist on the importance of being able to distinguish between apparent and real death. Profound faintness (syncope) or asphyxia, resulting, in the first instance, on severe physical injuries, or on overpowering mental emotion; in the second condition on prolonged submersion, suspension, or exposure to poisonous vapors may either of them so far interfere with the processes of circulation and respiration as to raise in the mind of a bystander the idea that the person is really dead. Under these conditions animation, however, is only suspended: the functions of the body have reached their lowest degree of action; there is infrequent and hardly perceptible respiration; the heart still continues to circulate blood, but its beat is feeble, and the arterial or pulse-wave can hardly be distinguished; the surface of the body will be cold and clammy, and ordinary stimuli have no effect. There is, however, no chemical alteration in the tissues of the body.

Even a stage further than this may the suspension of the external manifestations of life be carried, and yet the person cannot be said to be dead; thus recovery has been known to occur in cases of drowning, where neither pulse nor respiration could be decidedly said to exist, and the frictions employed in the promo-

tion of artificial respiration, etc., have been continued for hours before further signs of life declared their existence. Such instances, however, are to a degree exceptional, and their possible occurrence would simply point out the duty of continuing attempts at resuscitation, even in the absence, for some hours, of any symptoms of life.

When death has really occurred there usually comes on, even with great rapidity, pallor of the external surface; the temperature of the body sinks with more or less rapidity, according to the warmth of the surrounding atmosphere; the eye loses some of its lustre, and the pupils are usually dilated; respiration and circulation have ceased; within a few hours the limbs become rigid and fixed in their positions, and, later on, the textures show evidence of chemical decay; putrefaction commences, and the first external signs of this are specially to be found in the swelling and change of color of the abdominal surface. The eyes, later on, are flat and sunken, and the body, as a whole, undergoes well marked putrefactive changes.

The practical points, however, are these:—

If the heart-beat cannot be detected by the ear applied close to the left side of the chest, near to the left nipple, and pulsation have ceased in the arteries of the neck and arm; if the chest remains thoroughly motionless, and the rising and falling of the ribs can no longer, even in small degree, be observed, while a mirror, put before the mouth, has no dimness on its surface from moisture, and a bright steel needle, inserted into the body, does *not* become tarnished by oxydation in the course of half an hour, then the bystander will be justified in concluding that death has occurred.

FIRST HELP IN SICKNESS.

CHAPTER I.

THE SICK-ROOM.

LIGHT AND AIR. — How often do we enter the sick-chamber of a patient, and find every window and blind closed, as if in the intention of confining to the patient and his immediate vicinity all the effluvia and exhalations of the disease. Light and air are as carefully excluded from the patient as if they rode only on the wings of Death himself, instead of receiving them as the life-giving agents which they really are. There is such a perfect horror of a sick person "taking cold," that it is difficult, and at times even impossible, for the physician to convince the attendants that a certain amount of air is necessary for the comfort and safety of the patient.

We cannot here speak of the popular horror of the effects of cold water in sickness, especially in fevers, where its proper use is attended with so much benefit and comfort to the patient, further than to say that it is generally conjoined with an aversion to light, air, and the necessary precautions for cleanliness. In the

majority of diseases, proper ventilation, cleanliness, suitable means for the access of good air and light, are of more importance in the sick-room than are any other remedies. It will, of course, be proper to take the necessary precautions to prevent the patient suffering any bad effects from *cold* air, or from too strong a glare of light.

A CHEERFUL ROOM. — The sick-chamber should be made as cheerful as possible; and to this end mild, tempered light should be freely admitted through blinds arranged to exclude the glare of the sun. “The quantity of light admitted is a matter of immense importance to its suffering occupant. As light is an element of cheerfulness, it is on that account desirable that as much should be admitted as the patient can bear without inconvenience. The light should be soft and subdued, not glaring; and care should be taken that bright, lustrous objects, such as crystals and looking-glasses, should be kept out of the patient’s view, and that neither the flame of a lamp or candle, nor its reflection in a mirror, be suffered to annoy him by flashing across his field of vision.”

Acute diseases of the eye, and a very few other diseases unfavorably affected by light, are exceptions to this rule. We do not think that the general opinion is a correct one, that the irritation of the eye which always attends measles is rendered worse by exposure to even a mild light, or that the entire exclusion of light is a favorable or comfortable practice for the patient. If the admission of light is regulated as above directed, no bad results will follow. Children are most affected by these errors of treatment, on account of their inability to intelligibly express their

sufferings; and particular attention should therefore be paid to their comfort, and to the surroundings which so intimately affect the progress of infantile diseases.

But this practice of excluding light and air from the sick-room is not confined exclusively to a class whose want of knowledge and lack of facilities would form, in a measure, an excuse for them. Every school-boy now knows that a certain amount of the vital principal of the air—oxygen—is necessary for the maintenance of health, and of life itself, in the human body; and that, even when in sound condition, the deprivation of any amount of this vital principle will injuriously affect the health to a degree measured by the amount of oxygen of which the person is deprived. If it has this effect on persons previously in perfect health, what must the consequences be to a patient prostrated with a wasting disease, with increased respiration, increased temperature of the body, consuming more oxygen, exhaling more carbon, filling the apartment with the noxious exhalations produced by the disease, and compelled to breathe this vitiated air, perhaps, during the entire term of his illness? Children are particularly subject to maltreatment of this kind; and, as if tight windows and shutters were not enough in their case, there is generally added to it wrappings enough to swathe a mummy. Among certain classes it is the custom, if a child shows any symptoms of measles or scarlatina during an epidemic of those diseases, to dose it freely at once with hot gin or spirits, hot drinks of various kinds, and to swathe it in as many blankets and shawls as it can bear short of actual suffocation. The temperature of the room

is increased to an unreasonable degree, every breath of air, and sometimes every ray of light, is as carefully excluded as if their access to the child would be all but death. Of course the best intentions actuate this mode of treatment, but it is a most lamentable want of knowledge which dictates it. It is done with the intention of "bringing out the rash," as a safeguard against cold, and perhaps with a dozen other objects, when an ordinary warm bath, confinement to a room of moderate temperature, and warm diluent drinks, would be far more efficacious.

GAS FROM LAMPS, ETC.—The following simple arrangement will remedy the evil of foul gas, generated by burning a kerosene lamp all night in a sick-room :

Take a raisin, or any other suitable sized box, that will contain the lamp when set up on end. Place the lamp in the box, outside the window, with the open side facing the room. When there are blinds, the box can be attached to each by leaving them a little open and fastening with a cord ; or the lamp-box can be nailed to the window-casing in a permanent manner. The lamp burns quite as well outside, and a decided improvement of the air in the room is experienced. Try it.

It is not merely the presence of carbonic acid gas in the air that renders it unhealthy, but the exhalations from the human body still further deteriorate it. As an illustration we will take the perspiration, some two or three pints of which are discharged from the surface of a healthy body in the course of twenty-four hours, and in very warm weather, in some diseases, and on unusual muscular exertion, the quantity is very

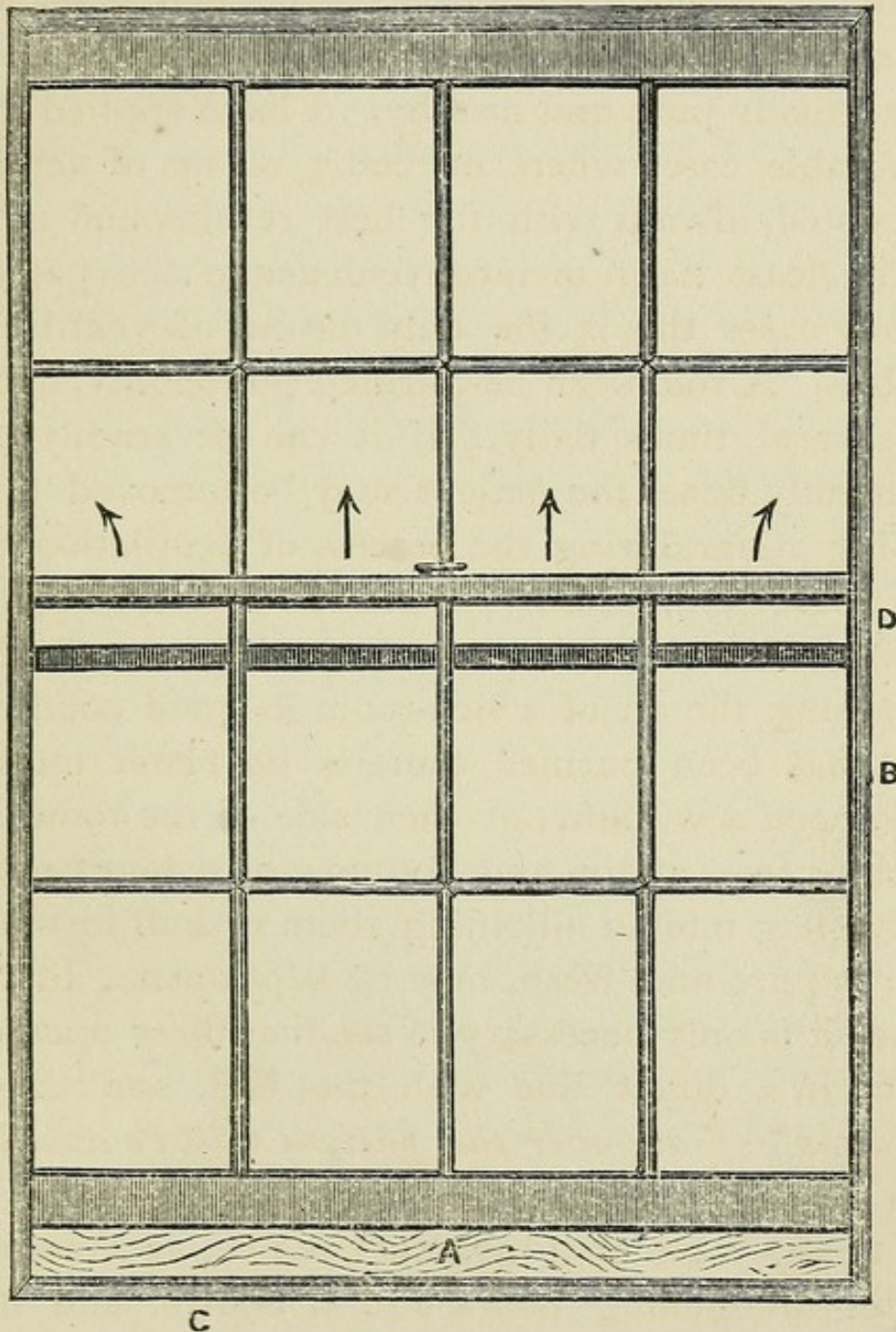
much increased. It will seem almost incredible to many that so large a quantity can be given off from a single body, as but a few drops are generally visible at a time, but as it evaporates rapidly from the surface it escapes our observation; so you see there are constant exhalations from the body even in health, and in disease they are increased, and many of them are of a dangerous character, contaminating the air into which they are discharged, rendering it poisonous and unfit for respiration. The burning of lights and fires of any kind consume oxygen, its presence being necessary for supporting combustion.

HOW TO VENTILATE THE SICK-ROOM.—The first great principle of ventilation is this—that ready means of admission for fresh air should be provided, and also easy means for the foul air to pass out. For this reason no room should be used as a sick-room (when possible to avoid it) that is not provided with windows on two sides at least, or openings by doors or windows on opposite sides of the room. A pleasant, sunny room should always be selected when practicable.

OPEN DOORS AND WINDOWS.—Probably there is no mode of ventilation that can be readily applied to most sick-rooms, where no special arrangement for ventilation exists, more effectual than that of opening widely the doors and windows of the room, covering the patient well as he lies in bed, and allowing a current of fresh air to sweep through the apartment. In warm weather, of course, the temperature of the room will not be affected by this, and in winter the patient can remain covered until the temperature is raised to a comfortable degree. In this way all danger of a

sick person "catching cold" will be avoided. This is a very primitive mode of ventilation, but an effectual one, as the current of fresh air sweeping through the room so effectually removes the noxious gases and effluvia as to leave the air remaining in the apartment comparatively pure and healthy. I have applied it in innumerable cases where no better means of ventilation existed, always with the best results, and never with the least harm or inconvenience to the patient. In many cases this is the only means of ventilation available. A room can be purified thoroughly, in this way, several times daily. If it can be readily and conveniently done, the patient may be removed to an adjoining room during the process of ventilation, but this is not really necessary, as the bed-coverings will be sufficient protection from the air, however cold. For maintaining the air of a sick-room in good condition after it has been purified, there is no better method than to open a window, at each side of the room, for an inch or two, at top and bottom; or a door or window opening into an adjoining room or hall in which the air is pure and fresh, may be kept open. In cold weather it is only necessary to see that these openings are not in a direct line with the bed, and thus a "*draught*" of air over the patient will be avoided. Either of the above modes of ventilation may be applied to any room at a moment's notice, as it is only a matter of opening doors and windows, and it is necessary to exercise discretion only in regard to their position with the patient's bed, when the air outside is colder than that in the apartment.

I now wish to describe a mode of ventilation very easily applied, and capable of being put in operation



A, slip of wood, its edge resting on c, bottom of the window casing. B, lower sash raised, but closed down on A. D, opening between the sashes through which the current of air passes in direction indicated by arrows.

The image shows a single sheet of aged, yellowish paper with a very faint, light-colored grid pattern. The grid is composed of a 4x4 array of squares, enclosed within a larger rectangular border. The lines are thin and barely visible, suggesting the grid was either printed or ruled very lightly. The paper has a slightly textured appearance with some minor discoloration and small dark spots, characteristic of old paper. There is no text or other markings on the page.

at a very few minutes' notice, in a house of almost any form of construction, from a palace to a cottage. I have often practically tested it, and have never seen it in operation except under my personal direction. Its cost is almost nothing, and it is applicable to all kinds of weather, winter as well as summer, as all draught is avoided — rainy weather as well as dry — because with this arrangement the rain cannot penetrate; whereas, if a window is lowered at the top in wet weather, the rain is very apt to be driven into the room. The plan is this: a piece of wood about an inch thick, three to six inches wide, and just as long as the width of the window-casing of the room to be ventilated, is provided. Now raise the lower sash of the window, lay the strip of wood on the bottom of the window-casing — its edge resting on this — and the ends in the grooves in which the lower sash slides; close the sash down snugly on the slip of wood, and you will find that an opening is left between the bars of the upper and lower sashes of the window where they meet in the centre, as shown in the engraving. The air passes through this opening in an upward current towards the ceiling, or else will pass outward in a downward current from the top of the room, so that all danger of a draught is avoided. One or more windows fitted in this manner on each side of a room (or even on the same side, if windows exist on but one side), secures perfect ventilation without discomfort to the patient. On account of the difference in the temperature and equilibrium of the air in the room and that outside, an outward and inward current will be established, a stream of fresh air passing upward in the direction of the opening between the sashes of

the window, toward the ceiling of the room, and another current passing downwards from the top of the room through the window on the other side, thus maintaining a nearly perfect system of ventilation, and one that can be put in operation more readily than any other plan known. The direction of the currents is such that the foul air is removed from that portion of the room where it is apt to be most abundant, and yet the patient is free from its influence and from all danger of a draught. The use of this easy means of ventilation need not be restricted to the sick-room, but it would be well if all the rooms of our houses had one or more windows fitted in this manner — particularly sleeping-rooms — and thus an efficient means of ventilation could be secured adapted to any season of the year. The slips of wood can be painted of the color of the window, so that they will not be readily noticed, or they can be made of ornamental woods, so as to be used in parlors and drawing-rooms, if necessary. This system of ventilation would be nearly perfect if it could be effected nearer the ceiling, but, when necessary, the upper sash can be lowered a little at the top. If the slip of wood has been properly fitted to the grooves, no draught whatever will be felt at the bottom of the window.

PURE AIR. — In order that any system of ventilation may be effective, it is necessary that the air admitted to the room should be as pure as possible. To this end it is imperative that the location of the sick-room, its surroundings, and the surroundings of the whole house, should receive attention. The sick-room should be as far removed from sinks, water-closets, etc., as possible, or if near them, care should be taken

that their covers are tightly fitted, as otherwise dangerous gases are likely to escape into the air of the apartment.

DRAINS AND CESSPOOLS.—Attention should be paid to the drains and cesspools, and the cellars and yards about the house should be kept free from decaying animal and vegetable matters, and heaps of refuse of any kind should be prevented from accumulating in the vicinity of the house and grounds. All offensive matters should be *instantly* removed from the sick-room, and the apartment purified at once.

DISINFECTANTS.—The ordinary disinfectants, carbolic acid, chloride of lime, etc., by being diluted with water and exposed to the air in shallow vessels, will destroy any offensive odor, but they sometimes do more harm than good, by concealing bad smells and preventing attention being directed to their cause. The best disinfectant is the removal of the cause, and the admission of plenty of fresh air to replace that which has been contaminated. It may not be generally known that furniture and clothing catch and retain in their substance the exhalations of disease; therefore everything of this kind which has been exposed to the air of the sick-room should be freely purified, and, if possible, thoroughly washed. There is no doubt that disease is often carried from one place to another by means of clothing, particularly woollen fabrics. The presence of too many persons in the sick-room should be avoided, as they can be of no benefit, and do harm by helping to consume the fresh air of the room.

FURNITURE OF THE SICK-ROOM, ETC.—The furniture of the sick-room should be of the most simple

character; consisting of a bed, small table, and two or three chairs, and with as little drapery as possible, or at least as is consistent with neatness. A window-blind and a curtain of some light material, and a piece of thick green baize temporarily to exclude the light or heat of the sun, are about all that is necessary. The floor should not be covered with a thick woollen carpet; the bare boards kept neat and clean by scrubbing are much better, provided you have long strips of carpet or matting to lay down to walk on, for these can be easily removed and properly cleansed from time to time. An oil-cloth for the floor, with strips of carpet as above, would be the best, as both can be easily kept clean without difficulty or injury to the patient. The space under the bed should never be used for stowing away trunks, bandboxes, nor, as is sometimes the case, a basket as a receptacle for foul or dirty linen.

THE BED AND BEDDING.—The bed should not be too high, for it will prove a source of discomfort to patient and nurse. For the convenience of both, the height of the bed should be such as to admit of the patient's head, when sitting up, being on a level with the nurse's shoulder as she stands beside him. The bed should also be of *medium* width, and stand out from the wall, so as to admit of passing around it. The best bed for general use is the hair, or prepared sponge mattress, and the worst is one made from feathers. A good and cheap mattress can be made from corn husks, and from several other substances. Even good clean straw, or chaff, is better than feathers. Wadded quilts or comforters are very objectionable,

on account of the difficulty of properly cleansing them ; and especially when wadded with cotton.

CHANGE OF BED-CLOTHES. — The bed-clothes should be changed as frequently as possible. To change the bed-clothes when the patient is unable to sit up, place him on one side of the bed, then roll up the sheet lengthwise to the centre ; and having previously prepared the clean sheet by rolling it in the same way to the middle, (lengthwise, of course,) spread the part left unrolled over the half of the bed, bringing the roll of the clean sheet close to the roll of the soiled one ; now lift the patient over on to the clean sheet, pull out the soiled one, and unroll the clean one, and the thing is done. When it is desirable to keep the head cool, a pillow made of hair, prepared sponge, or oat chaff, is very much to be preferred to a feather one.

The remaining furniture of the room should not exceed two or three wooden or cane-seat chairs, a small bed-table, and a sick or reclining chair, when the patient is able to be got up.

QUALIFICATIONS AND DUTIES OF THE NURSE. — To be a good nurse, one must be of strictly temperate habits, frank and truthful, cheerful in disposition, gentle in every touch and movement, calm and self-possessed under all circumstances, with strength of body and presence of mind for every emergency, kind and attentive to the patient, quick to anticipate every want, assiduous in the performance of every duty, firm and unyielding in requiring obedience to treatment, patient under provocation, simple, neat, and clean in person and dress, tasty and orderly in the arrangement of the room, the dress of the patient, and the

clothes of the bed, a thorough knowledge of cookery, to prepare such food as the patient requires, and a good share of *common sense*, or a knowledge of common and every-day affairs. Now if, in addition to these, the nurse is in possession of an acute sense of *sight*, by which written directions can be quickly read, and the slightest motion of eye, lip, or finger of the patient, by which some little want is indicated, seen. A good voice, properly cultivated, with which to beguile some of the tedious hours of sickness, by reading aloud; the sense of *hearing quick*, to catch the faintest whisper, and thereby save the exertion of the sufferer; ability to detect any change in the heat or dryness of the skin; and the temperature of any external application required to be made, so as neither to chill or burn the patient; to detect by the sense of *smell* any foul odors, or any impurities in the atmosphere of the room, and to notice any mistake which may possibly have been made in medicine; such nurse will be able materially to assist both patient and physician. We shall only further add a few —

HINTS TO THE NURSE.—Consult the patient's wants, but consult him as little as possible. Your decision need not be very obvious and positive; you will be most decisive if no one suspects that you are so at all. It is the triumph of supremacy to become unconsciously supreme. Nowhere is this decision more blessed than in a sick-room. Where it exists in its genuineness, the sufferer is never contradicted, never coerced; all little victories are assumed. The decisive nurse is never peremptory, never loud. She is distinct, it is true — there is nothing more aggravating to a sick person than a whisper — but she is not loud.

Though quiet, however, she never walks tip-toe; she never makes gestures; all is open and above-board. She knows no diplomacy or *finesse*, and of course her shoes never creak. Her touch is steady and encouraging. She does not potter. She never looks at you sideways. You never catch her watching. She never slams the door, of course, but she never shuts it slowly, as if she were cracking a nut in the hinge. She never talks behind it. She never peeps. She pokes the fire skilfully, with firm, judicious penetration. She caresses one kind of patient with genuine sympathy; she talks to another as if he were well. She is never in a hurry. She is worth her weight in gold, and has a healthy prejudice against physic, which, however, she knows at the right time how to conceal.

A pleasant, cheerful, well-ventilated and well-lighted sick-room has a beneficial influence, also, by its mental effect on the patient; and every exertion should be made to secure this end, both for the comfort of the patient and his attendants, and the parties interested will be well rewarded for their pains, by the cutting short of the disease, and the hastening of convalescence.

If attention be paid to the details spoken of, and some mode of ventilation adopted, no difficulty will be experienced in keeping the sick-room in such condition as will be most favorable, not only for the patient's recovery, but for the health and comfort of the attendants.

CHAPTER II.

HINTS ON NURSING, ETC.

THERE are a few practical details in nursing with which every one should be familiar, yet it is a matter of fact that very few know anything about them; *e. g.*, the preparation of baths, simple warm, hot, tepid, and cold; mustard baths, oatmeal baths; the making of poultices, mustard, bread, and linseed, etc.

BATHS. — The surest way of testing the warmth of a bath is to insert in it a thermometer or heat measurer, in which the degrees of heat are marked off and numbered; the scale known as Fahrenheit's is ordinarily used.

The warmth of a bath may be roughly tested by placing the hand in it; but allowance must be made for the fact that water which feels only warm to the hand would feel quite hot if a larger surface were immersed — as, for instance, the whole body.

The warm or hot bath is most useful in convulsions, cramps, colic, and restlessness; it is a great soother of pain, and diminishes fever. A tepid or warm bath allays irritability, induces sleep, and in many cases obviates the necessity for medicine. It must not be used too often, however, as it tends to produce weakness.

A warm bath causes the mercury of a thermometer inserted in it to rise to about ninety-five deg. ; a *hot* bath, to one hundred or one hundred and five deg. ; a *tepid* bath, to eighty-eight deg. ; a *cold* bath, sixty deg. Five or ten minutes is long enough to keep a child in a warm or hot bath ; five minutes for a tepid bath. Children under two years should not be *immersed* in a cold bath ; they may be readily sponged over once or twice a day with cold water (but not colder than sixty degrees, *i. e.* not very cold water) with advantage. Under special circumstances these baths may, by medical advice, be continued longer. Or they may be placed in a tub, and water squeezed on them from a large sponge, from the head downwards. Three or four table-spoonfuls of salt to an ordinary bath is a very stimulating and useful addition. If delicate children appear chilled by a bath, they should be placed in a warm bed for a quarter of an hour after it.

The mustard bath is often very useful for children who have a severe cold, or in whom the rash or measles has suddenly gone in, etc. A table-spoonful of mustard is added to a warm bath, and the child is held in, supported in the nurse's arms, until the nurse feels the tingling effect of the mustard. In certain skin affections, where the skin is very sensitive and the water hard, it is very useful to put a handful of oatmeal into the water while tolerably hot, and by the time it is cool enough to be used, it will be much mollified by the mucilaginous materials yielded by the meal.

POULTICES. — *Linseed poultices* are most useful in the treatment of all kinds of superficial inflammations, abscesses, and the like, also in inflammatory chest

diseases, "cold at the chest," bronchitis, inflammation of the lungs, etc., when they should be large enough to cover the whole of the back or front of the chest.

The object of applying a poultice is to keep the part warm and moist. They are made in the following manner:— all the materials, linseed-meal, linen-rag cut of proper shape and size, a bowl and spoon, or spatula, must be near the fire in readiness for use. Then pour sufficient boiling water into the bowl for the poultice, and add the linseed gradually with one hand, while the mixture is well stirred with the other, until a poultice is obtained of the necessary thickness; this is then spread evenly upon the warmed linen, the edges of which are neatly turned over, and it is ready for application. A good poultice should be thoroughly well mixed and moist, without being at all "sloppy"; it should be applied as hot as possible, but with young children care must be taken not to scald them: the degree of heat may be tested by the back of the hand.

Not unfrequently, after one or two linseed poultices have been applied to young children, the skin becomes irritated; in such cases the linseed must be diluted with bread, first soaked in boiling water. It is often advisable to apply to the chest a more stimulating poultice than the linseed; this is obtained by adding a third of mustard to it, or simply by sprinkling a little mustard upon the surface of the linseed poultice. These applications must of course only be used occasionally, ordinary poultices being used in the intervals. A poultice soon gets cold, when another must, if necessary, be applied. A thick layer of cotton-wool, or a double fold of flannel applied over the poultice, will prevent it from getting cold so soon; a piece of oil-

silk or mackintosh cloth laid over the poultice, keeps it from getting dry.

Slippery-elm Poultices.—These are made by using the pulverized, or superfine flour of the inner bark of the *Ulmus fulva*, and are prepared in the same way as those from linseed. Their use are indicated in almost every case where any form of poultice is required, it being of a very soothing nature.

Bread poultices are much milder applications than linseed, but not so efficacious, neither supplying so much warmth nor moisture to a part. They are chiefly useful in very superficial inflammations, especially connected with sores on the skin, also to add to linseed poultices to make them less powerful. They are made by putting some thick slices of stale bread into a basin and pouring over them some boiling water; after a few minutes' soaking, the water should be poured off, and some fresh added, which is again strained off, and the soaked bread beaten up into a soft pulp and spread on linen. By boiling the bread in the water for a few minutes, a more dense and sticky poultice is obtained.

Mustard poultices are never to be used for children, since they cause great suffering. A poultice consisting of one part of mustard and two parts of linseed is a strong poultice for a child under two years old. Always after removing a poultice, the surface of the skin should be gently sponged with warm water. In continual poulticing, one poultice should never be removed until the other is ready for application, and cotton-wool or flannel should be applied for a time after the poultices have been stopped.

CHAPTER III.

MENTAL TREATMENT OF THE SICK.

DON'T tell your patient a falsehood. There is something significant, as well as most touching, in the longing which a half-delirious patient sometimes shows for the presence and caresses of some particular person — one, perhaps, for whom she never before felt any very great affection — one, it may be, her previous intercourse with whom has been none of the pleasantest; but one, I think you will always find, between whom and herself she is sure that there are, and need be, no concealments or equivocations.

It is commonly remarked that crazy people often take a violent dislike to those whom in health they most loved. I never knew this, to be the case, except where the friend had previously been deceiving the patient, or the patient the friend.

Somehow or other, almost every one has some friend, often our nearest — perhaps, alas! our dearest too — whose presence is the cause of a constant struggle to appear to be what we are not. A fit of illness will often be preceded by some days or weeks of irritability, combined with an intense longing to give vent to some feeling which has been for years, perhaps, concealed, and which the patient struggles

painfully to hide. When the self-control at last gives way, the entrance of the friend who was the cause of this struggle will be the signal for a fit of violent excitement, which is attributed to dislike, but which is, I believe, in the early stages of illness, rather a symptom of terror. And now the patient is supposed to be seized with a monomania, which causes her to think and feel in a manner quite contrary to what she thought and felt before ; whereas the fact, perhaps, is that she is now for the first time *speaking* as she has thought and felt for years.

The plan I should try in such a case, if the friend were one whose kindness and wisdom I could trust, would be, to let him go alone to the patient and say, "You may say anything you like to me ; I know more of your feeling than you suppose. Nothing you can say will hurt me or make me angry. All I beg of you is to speak quietly and steadily, and not to say more than you are sure is true." I believe the result of such a course, if taken early enough, would often be, as I know it has sometimes been, that the apparent dislike would change to an intense affection, and that the impending fit of delirium would lose much of its painful character, even if it were not warded off altogether.

If the experiment succeed, gently but steadily discourage all recurrence to the painful topic — all confessions of wrong feelings formerly indulged, all dwelling on anything peculiar in the relations of the patient to himself, all morbid self-analysis and sentimentality of every kind, and try to awaken the patient's interest in other things.

If the first interview failed of producing any good

effect, I would not repeat the experiment without medical sanction. A great deal would depend, for the success of it, on its being tried early enough, before delirium actually set in, so that the *idea* of hating or dreading the friend should not have time to fix itself in the insane mind. A good deal also would depend on the previous character of the patient, and still more on the character and intelligence of the friend.

The next best plan to this would certainly be to keep the friend away altogether, and never to allow his name to be mentioned in her presence. But it is bad to yield thus to an insane fancy. It is always good to conquer if you can.

When the patient takes a dislike to some one who has been deceiving her, it is simply cruel to allow them to remain together for one hour. The dislike is in this case not a delusion at all; it is the result of the uncontrolled action of a perfectly natural and healthy instinct.

It often happens that a nervous woman will, in illness, feign a desire to get rid of some person whom she dearly loves; and will use every artifice, even that of pretending to dislike him, to induce him to leave her, although perfectly conscious that his doing so would cause her the greatest possible pain, and would diminish her chance of recovery. A morbid sense of not deserving affection, a suicidal desire to inflict suffering on herself, and some perverted notion about the selfishness of allowing a friend to tie himself to a sick-room, are usually the chief causes of this sad and often dangerous mental phenomenon. There is, humanly speaking, no remedy for it but to

smother it out of existence, to drown it in love. "I can't help your not wanting me; I want you, and I can't do without you; so I mean to stay in spite of all you can say," is the proper tone to take with such a patient. It has not unfrequently happened to me to see a fit of what would have seemed to a casual observer to be violent anger and dislike, suddenly cut short by such a speech. I have seen the twitching features relax, and the patient nestle down on the arm of a friend she had been professing to want to send away, and settle, with a soft sigh, into a sleep worth all the medicine in the world. I am persuaded that many a fit of real suicidal mania might be nipped in the bud if the patient were told earnestly enough, lovingly enough, and *soon* enough, that her life was of value to some one whom she loved; ay, I fear I might have said, if she could have been persuaded that her life was of value to any human being. Women who are a little over-tired (just because their lives are a little over-full of unselfish cares and duties, and because too many others depend upon them) are very subject to fancy, in the reaction of fatigue, that their lives are of no value, and that they are not wanted by any one on earth. The remedy is to tell the patient that, there as she lies, weak, tired, prostrate and useless, some one wants her for very love of her, and cannot live without her.

Again, there are women who, though incapable of any deep feeling, are gifted (or cursed) with that sort of emotional temperament which is popularly supposed to indicate an affectionate disposition. Such women, when suffering from hysteria, often pretend a dislike to those — I will not say whom they *love*

best — but to those whose society is most agreeable to them, and whose caresses and kind words they most crave for. They do so, partly for the pleasure of testing the strength of their friend's affection, partly for the amusement of inflicting pain, partly for the excitement of a scene. They do it for the sake of flirting, in fact; for the same reasons which make a heartless girl coquette with her lover. The proper treatment is to take the patient at her word, to leave her when she bids you, and be always chary of your caresses and reserved in your conversation with her. But you must be prepared for a grand explosion of temper and an aggravation of all the symptoms, physical and moral, when first she finds herself taken at her word.

I have said that you should never deceive a sick person. It by no means follows from this that you are to let him know all that you think about his state of health, or all you may learn of his affairs. You should try to accustom him to see that you do not feel called upon to answer all his questions; that you do not think it wise to talk to him about his state of health or his chances of recovery, or about worrying business; and that your refusing to do so on any particular occasion does not necessarily imply that you have bad news to give him. Use your discretion, according to circumstances, as to how much you will tell him; but never deceive him, and, above all, never do anything to induce him to deceive you.

And remember that a calm demeanor, when you know there is news to tell which would make the patient uneasy if he heard it, is, if you have faith enough not to feel *uneasy*, something very different

from deceit. Conquering your dislike of a person, learning to see what is good in him and to forget what is unpleasant, is not bad for you, but very good. It is the pretending to like a man whom you know you dislike, hiding angry feelings which you are secretly cherishing, which, as I have said already, makes such havoc of your brain, and disturbs the nerves of all who are under your personal influence. And so it is with your uneasiness about your patient. Do not hide fears which you allow yourself to feel, but "put on" the quiet faith which will cause you not to feel them. The simple truth is, that as long as you *feel* uneasy about a sick man's body, soul, or estate, you have no business near him. If you show it outwardly, you infect him with your fear. If you hide it, you give him a vague sense of duplicity and unrest.

Never try to amuse a nervous patient with any conversation which tends to encourage in him hard, uncharitable, mocking or disparaging thoughts of others. Make it your business, so far as your influence extends, to discourage such thoughts. There are cases in which it seems almost impossible to keep them at bay. Indeed, there are cases in which it would appear almost wrong not to be angry. But you ought to get it clearly into your mind, that, however circumstances may seem to justify either anger, ridicule, or contempt, yet, as long as your patient is indulging in them, his mental disease, be the nature of it what it may, is gaining strength, though it may be without his or your perceiving it.

Keep your patient's thoughts as much as possible fixed on those points in the characters of his friends in

which they are superior to himself. If he cannot, and ought not to, help being angry at certain things when he thinks of them, he can, and while he is ill he should, try to avoid thinking at all of those things which make him angry.

For a similar reason I would say (though in this I know that many nurses would not agree with me), do not try to raise your patient's spirits by exciting in him a good opinion of himself, his capabilities, or his doings. Even when the main feature of the disease consists in a morbid tendency to self-depreciation, this is, as it seems to me, quite the wrong sort of remedy. There is always a good share of conceit mixed up with this over-conscious humility. The true cure for it consists, I feel certain, in keeping before the mind a standard of excellence so high that any difference in the amount of goodness between one's self and one's neighbors, or any discrepancy between what one actually is and what one's best friends, or one's worst enemies, think of one, must, by comparison, vanish to a point and disappear. Try to put such a standard before your patient. Try gently, very gently, to make him ashamed of thinking and talking so much about himself in any way. And then, for the rest, just flood the disease with love and sympathy. Nothing has so great a tendency to produce true, and therefore to correct false, humility.

I am supposing that the inclination to self-dispraise is genuine. But nearly every real symptom has a counterfeit, which requires to be treated in a different, if not a totally opposite, manner. Self-depreciation is sometimes affected, either for the purpose of what is called "fishing for compliments," or to excuse

one's self for the neglect of known duties. The less notice you take in any way of tricks of this sort, beyond just letting the patient perceive that you see through them, the better.

I find, indeed, both with children and with patients, that upon a great variety of mental symptoms, the simple question, "Are you quite sure you mean what you are saying?" acts like a spell.

Do not argue with a sick person about his delusions. Do not try to persuade him that he is mistaken. If his monomania has reference to outward matters of fact not directly concerning himself, quietly admit that it is possible he may be right in his opinion. Tell him that the excitement which the subject causes him is a token that it is not his business to decide upon it, and that no mistake you are likely to be led into will be as serious an evil as the continuance of that excitement. Bid him trust you; and ask him to endeavor to fix his mind upon some other subject. If, indeed, you should happen to be able to assert, from later evidence than he is possessed of, that he is mistaken, it may be well to do so. The effort on his part to trust your *word* will be good for him. But beware of helping to fix his mind on his monomania; and especially beware of saying anything which seems to imply that you consider your judgment sounder than his. Nothing is so likely as that to confirm him in the notion that his judgment is sounder than yours. And besides that, he may really be right, after all, as to the matter of fact.

Monomania is oftener a mistake as to proportion than as to simple fact. Delirium and hysterical attacks are often accompanied and preceded by a won-

derful sharpening of some of the senses, and of mental faculties, at the expense of the rest, by an exaltation of one set of powers and deadening of the others, which throws the mind off its balance, and makes particular objects and ideas acquire a disproportionate value, just because they are, for the time, seen all alone, others being forgotten. A patient is often thought to be insane, only because he insists on asserting something which is true, but which the nurse does not see to be so, and of which she only knows that in his ordinary health he could have no more knowledge than herself, and of which she therefore supposes that he can have no knowledge in his sickness. The patient often knows, and is sure that he knows, something of which you are quite ignorant. The thing may be of no consequence whatsoever in itself. His delusion may consist in the very importance which he attaches to it. If you contradict him when he *knows* he is in the right, you only make him fancy that it is of immense importance that he should convince you. In fact, there is hardly any mistake so cruel as that of treating as insane one who is only in a state of intense vision. You run, thereby, the very greatest risk of permanently disordering the intellect. Say, "You may be right. I cannot tell. I cannot *make* myself see the thing as you do. If what you say be true, I may be able to see it. But the subject quickens your pulse and flushes you. That is *certainly* a token to me that you are not to talk of the subject at all while you are ill. I will try to find out whether the thing be as you say. But I will not, I dare not, talk to you about what excites you."

Never laugh at any assertion of a patient about outside matters of fact. Never treat what he says about them with indifference or disrespect. For the abnormal quickening of particular faculties of which I have spoken is often accompanied by an intense realization of an Unseen Presence. The man, perhaps, never before really knew, or at least never felt, that whatever truth he perceives is taught to him by that Unseen Teacher. Suddenly he discovers that *some one* is telling him *this* particular truth — is showing him *this* particular fact. No wonder that he feels himself then inspired with the particular truth or fact. Any appearance of irreverence on the part of those to whom he speaks is torture to him. And of course the more you cannot see the thing he is telling you, the more he takes it to be a special revelation granted to him, and which he is bound to communicate to others. Take his inspiration quietly for granted; only tell him that you are inspired too: your special business being to take care of his health — *your* inspirations refer to that subject, and not to his subject. If you believe this, you will feel no difficulty in saying it kindly and seriously. If you do not believe it, what *can* you do in a sick-room.

Of course I do not mean that a nervous patient never is wrong as to matters of fact. What I mean is that it happens more seldom than we fancy. And if the patient is right, contradiction may do him serious harm; whereas, even if he is wrong, it can do him no harm to drop the subject. In fact, the more wrong he is, the more necessary it is that he should drop the subject.

If the patient's delusions have reference to his own

state of body or mind, or to outward events, as influenced by his own acts, or even, perhaps, as affecting especially his own happiness — as, for instance, if he supposes himself to be dying, or going crazy, or fancies that every one dislikes him, or that he is under an evil star, or that he brings ill-luck on those who love him, or that he has sinned past redemption, or that he is not “elect,” or that he has ruined himself and his family, etc., etc., — the treatment must be different from that recommended above. Listen, for once, quite quietly to all he has to say. Then say calmly, “It is quite natural that you should feel as you do. It is a mere symptom of your physical condition. But you know it is a mere delusion. No one could brood much over his own state without falling into some delusion or other. The precise nature of the delusion depends on the nature of the disease; but if I sat thinking about myself for a day or two, I should be sure to be haunted by some absurd fancy or other. There is nothing disgraceful or sinful in your imagining what you do. Only it will really be very wrong if you go on brooding over a subject which makes you so morbid. Try to think of something else.” After saying this, or something like it, once, show a good deal of indifference to the whole subject. Treat it openly as a monomania. A little kindly banter even may not be amiss.

I am aware that a patient sometimes pronounces himself to be dying when the doctor thinks there is no danger (or vice versâ), and turns out in the end to have been right. He has seen the end, as it were, of his disease by some kind of instinct or inspiration, without effort or excitement, and by the help of no

process of reasoning. But I think you will find that this sort of prophetic instinct about one's self is almost always accompanied by a strange calm, which subdues all desire to convince others against their will. If your patient tries to worry you into the belief that he is dying, when the doctor says he isn't, you may very safely treat it as a delusion born of restless and selfish anxiety.

Never forget the wide difference between being led to make an effort of self-control by the desire not to be selfish or obstinate, and being driven to make it by the fear of being thought so. I do not say that the driving process may not be necessary sometimes, in the case of a patient who cannot be led, and over whom no high motives have any power. But driving is a very bad substitute for leading. And there is as much difference between the fear of being thought selfish and the desire not to be so, as there is between the fear of a flogging and the desire to please one's parents. And nurses, too, often do not consider this. And there are great numbers of sick people over whom it is both needless and hurtful to hold any sort of rod — numbers who, poor things! are only too anxious to go the right way, and whose one desire it is to get any one to guide and sustain them along the rough road by which they must travel.

A great deal of mischief is often done by the thoughtless way in which nurses and friends try to carry out the doctor's injunction to *discourage the patient from dwelling on* this or that morbid idea or distressing recollection. What the doctor means is, that you are never to bring the subject before the patient's mind when he is not thinking of it; and

that when he is, you are to encourage and assist him to think of something else. It is bad for him to talk much of the painful subject, because it helps to fix it on his mind. But it may be a great relief to him to say out all he has to say occasionally. It may be the greatest possible help to him to throw it off his mind. The mere negative preventing of a sick man from speaking of a subject that haunts him is often very cruel, if you cannot at the same time help him to turn his thoughts to something else. And if you say anything which induces him to pretend not to be thinking of a thing which he cannot forget, you run the risk of doing very serious mischief. Face the morbid subject boldly until you have made the patient recognize some definite and effectual mode of banishing it from his recollection, and show him that it is his duty to banish it whenever it arises. After that, you may avoid entering into the subject. When he speaks of it you need only remind him that it is his duty and yours to think of something else.

How to bring the moral sense to bear on any particular topic must depend on the temperament and previous habits of mind of the patient, and on the amount of his intimacy with, and affection for, yourself. You may tell him, if you think it will influence him, that his talking about a certain subject *pains you*; but take care that he is not induced, by the mere fear of so affecting you, and your want of sympathy therein with him, to be silent about it when it would be a relief to him to speak.

Make it your study to supply your patient with healthy thoughts, of such a nature as to prove the natural corrective of his unhealthy ones. It is often

a good plan to select a few words from a poem, or from some religious or philosophical work with which the patient is acquainted, repeat them slowly, make him say them after you, and then bid him have recourse to those words again whenever he feels tempted to dwell on the particular thought against which you have warned him.

Miss Nightingale complains of the injustice often done to a sick person by unsympathizing people who do not know how much disease and confinement are affecting his mental health, and how much difficulty he has in behaving even decently well to his attendants. There is often much cause for her complaint, up to a certain point.

We are too prone to draw in our minds an artificial line of demarcation between the sane and the insane, which has no existence in fact. Cases are constantly occurring in which a long course of unkind or wicked or capricious behavior suddenly culminates in some act so outrageous that the doer of it is at once placed under restraint. When this happens, it is admitted on all hands that the patient was all along insane, and that, for want of knowing him to be so, the world has been judging him unjustly. But the world judges quite as unjustly, in the same way, thousands of people who never break out into acts of violence at all. The breaking out is very much a matter of accident.

And this unjust judgment of those whose mental malady is *not* yet openly acknowledged, is by no means the worst consequence of the artificial distinction which we so lazily and clumsily make between the absolutely sane and the absolutely insane.

Try in every way to prevent a nervous patient from

drifting into a feeling of being cut off from his past life. There may, of course, be some special reason for wishing him to avoid dwelling on the past, or on a particular part of it. But, as a general rule, anything which keeps up the sense of connection with the past and the future, and with the human world outside, is a valuable corrective, both to restless impulses and to morbid melancholy. Encourage him to keep up old habits, except, of course, such as are positively injurious or wicked. It is a bad sign when an orderly woman begins to be indifferent to her personal appearance, and to the neatness of her room. And it is something more than a mere sign or symptom. They are not *merely* outward signs of an inward state, they are also means whereby we get into that state. If I had charge of a woman who had been a notable, orderly housewife, and if I began to find her take less notice than usual of a littered room or of untidily served meals, I would make it the chief business of the day, both for her and myself, to see that things were done decently and in order. I would lay great stress on the discomfort caused to *me* by want of neatness, and I would try to make her be tidy, as a duty to me.

Keep up more especially the habit of whatever religious observances the patient has been used to consider necessary, or to find soothing. Make Sunday as different as you can from other days, if he has been accustomed to keep it sacred. Make the distinction, whether he cares for it now or not, in a quiet, cheerful, matter-of-course fashion, so as to let him feel as much as possible that his past life is still going on of its own accord. It often happens that a pa-

tient will profess to be, and will fancy that he is, utterly indifferent to such observances, and yet, if you omit them, he will feel bitterly that he is lost and forsaken, and given over to disease and loneliness.

I need hardly remark that while engaged in the care of nervous patients or sensitive children, there is almost as much necessity for exercising control over your thoughts as over your words, and that not merely while you are in their presence. Indeed, I strongly suspect that if we knew more than we do of the secret relations between human beings, we should feel our unspoken thoughts to be at all times as important as our words. But I may as well remind you that a state of actual or impending delirium is also one in which the instincts become quickened and the sensibilities intensified. An excitable child, an hysterical girl, a fever patient, or a lunatic, is, therefore, much more likely to be affected by the influence of your thoughts than a healthy man.

An important part of the doctor's business consists in distinguishing between symptoms of organic disease, and such as are merely nervous or functional. This is a medical question, and you can give no help in solving it, except by faithfully reporting such observations as you have been able to make. But a very important part of your business consists in detecting how far the nervous symptoms themselves are real, and how far they are merely hypochondriacal or wilful; in distinguishing, that is to say, when the patient is yielding to what he might conquer if his will could be aroused, and when he is engaged in a brave, but, perhaps, blind, struggle, in which he only needs to be helped and guided. To discriminate between

them requires neither medical knowledge nor much sick-room practice ; but it does require genuine kindness of heart and a habit of observation, and, above all, a habit of looking at human nature from a right point of view, and of judging it by an adequate standard. If you begin by assuming that you can form any certain judgment upon this point merely from what you know of that particular patient's previous character, you are likely to be led into serious mistakes.

I will only say further on this point, that little permanent good seems ever to be done by appealing, in sickness, to a much higher class of motives than the highest of those which the patient is accustomed to act on. Try to keep the best side of his mind uppermost, appeal to the best among those motives which habitually influence him, draw out his best self, and enlist it to fight on your side against his worst self ; this, I think, you will find more practically useful than the attempt to import into his mind, while he is ill, thoughts and feelings higher than he was capable of understanding when in health. And if the moral tone is very low, it may be necessary at times to make him afraid or ashamed of indulging his waywardness.

It sometimes happens that one whose life and aspirations have been of a higher kind than those of ordinary mortals, allows himself to become morbid on some subject which he fancies he has a moral or religious reason for getting excited about. The real reason for excitement is, of course, some sort of brain disturbance, just as much as in the case of one who goes crazy from indulged passions. It is natural to shrink from taking a tone of superiority with one to

whom we have been accustomed to look up. But were a man as wise as Solomon and as holy as an apostle, still, when once he is ill enough to be, as to his health, in the charge of any other person, he ought to be made to feel as kindly as possible, but very emphatically, that that other is, for the time, one of "the powers that be."

And remember, it is by no means enough that you succeed somehow in preventing your patient from doing the particular thing that is bad for him. It is of quite as much, and often of more, importance that you should procure for him that repose of brain which comes from voluntary submission to direction. A very good man usually needs that repose quite as much as a very bad one.

Every one who has the opportunity of knowing much about sickness, knows that numbers of people die every year not of disease, but of starvation. This happens, in many cases, because the nurse neglects the physical, material part of her work. She brings up sour milk or spoiled food, or she has never taken the trouble to find out what sort of food the patient can best digest. But it happens quite as often because she does not understand the patient's mental condition, and does not know how far to believe his statements about himself and his wants.

It is not always easy to find out why a patient refuses to eat. Often he does not really know himself, and will give you, in perfect good faith, a reason as far as possible from the true one. *You* must learn to distinguish, just because he cannot, between real want of appetite (either for food generally, or for some particular kind of food) and a morbid fancy which

you might help him to conquer, or a wilful whim which he ought to be shamed into conquering himself. On the other hand, a patient will often tell you that he does not like, or cannot digest, a certain kind of food, when his real reason for not eating it is a mental and imaginary one.

It is not as well known as it ought to be, that the sensation of hunger is, under certain circumstances, positively delightful. It produces, or at least fosters, in some delicately organized frames, something like the same sense of spiritual exaltation which opium-eating does in coarser natures; only that it is, while it lasts, of a far purer kind.

A patient will often tell you, and tell you truly, that he is "less comfortable" after eating what you and the doctor consider to be the proper kind and quantity of food. Now this *may* mean that the food has given him some symptom of indigestion, in which case you ought not, without very positive orders, to repeat the experiment of making him take it. But it may mean, on the contrary, that the food has put an end to an abnormal condition in which mental exaltation was making him insensible to physical discomfort. And if it means that, the more he shrinks from his food the more need there is that he should take plenty of it.

If you have to deal with that morbid shyness about giving trouble, of which Miss Nightingale speaks, which mixes with so many strange fancies and evil tempers, and which helps to shorten so many valuable lives, you must make your patient feel, by every means in your power, that it gives you pleasure to be asked to do anything for him, and you must also make it clear to him that his neglecting to tell you

what he wants, only entails on you the additional trouble of finding it out for yourself. And you must be on your guard against an infinite number of cunning tricks to prevent your finding it out. There are certain subjects, and this is one of them, on which the more saintly a man's character is, the less you can trust to anything he says; unless, indeed, when you actually appeal to his honor not to deceive you, and even then he may do it unconsciously, from habit.

The history of many and many a sad bereavement might be told briefly in this wise:—The mother of a family, or some one dearly loved, is taken ill. She needs no surgical treatment, no scientific nursing, nothing (the doctor says) but ordinary care, such as any commonly intelligent woman is qualified to give—nothing, in fact, except quietness and *plenty of light, nourishing food*. A hired nurse would be a needless expense, and the patient would rather not have a stranger about her. Her daughters and friends could have no greater pleasure than to wait on one so good, so unselfish, so beloved; and so the matter is settled; and a very right and wise settlement it would be in many (though not in all) cases—if only the friends knew how to accomplish that which they have undertaken. But the very essence of all goodness and piety is a certain tendency to devotion and self-denial, which, when good and pious people are cut off by illness from their ordinary ways of exercising it, often manifests itself in the most unexpected and unaccountable ways. The patient, accustomed to minister to others, and to spend her time in planning to spare them trouble, now employs her faculties in inventing ingenious devices for preventing her attendants from “hav-

ing the trouble" of carrying out the doctor's instructions; the unsuspecting friends fall into the trap, and the patient dies of starvation in consequence. One of the best and truest women I ever knew, deceived her daughters for six weeks by protesting that she could not endure beef-tea (which the doctor had prescribed for her), and that it was of no use to make it, for she couldn't and wouldn't touch it. At last she was surprised into tasting it, and pronounced it delicious. And then she confessed that she had never tasted it before, and had only professed to dislike it because she supposed that it was a "troublesome thing to make." Another, a most affectionate mother, was reported on several successive mornings by the friend who had charge of her during the night, to have been "free from pain, and quietly asleep for many hours." I thought it strange that if she did sleep so quietly, she should look most tired in the morning. She could only swallow a very small quantity of food at a time. The doctor had therefore ordered her never to be left more than an hour and a half without nourishment. With some difficulty I got her to confess that she feigned sleep, although suffering great pain, to save her attendant the trouble of warming her food in the night. Both these ladies died; and in each case the doctor protested to the last that there was no real disease, and that the patient was sinking from pure exhaustion.

Don't wait till the patient asks for his meals, but bring them at regular hours. Find out by observation rather than by questioning what he likes best. Let anything which you think he will specially fancy be produced unexpectedly, and let it come as the gift of

a friend rather than as part of the routine of his treatment. Don't take your own meals, or cook, or talk about food, in the sick-room; don't leave food in the room between meal times, etc. If you have to nurse a friend and to attend to any of your ordinary business at the same time, I would not advise you to hamper yourself with unnecessary and artificial routine. You must have very little tact if you cannot find out by a friend's face when you are jarring or annoying him.

The real principle which underlies all rules is this: don't cause the patient to think more than you can help about food merely as food, or about the effect of it on himself. The more you can associate ideas of love and care and kindness, and of other people's enjoyment, with the nervous patient's meals, the more he will eat and the better he will digest it.

Do not neglect to begin the mental treatment in good time. Too few people think seriously of it until delirium is actually threatening. From the time that a person is put as patient into your charge, you should watch his symptoms, mental as well as physical. Words act by laws, just as much as food and medicines do; and you are answerable for the effect of yours on your patient, whether he is delirious or not. When *first* a morbid fancy begins to take possession of the mind, the sufferer is not delirious, for he is half-conscious that his fancy is a delusion, or at least an exaggeration. *Then* is the time to bring his moral sense and his better judgment to your aid, and to show him that he ought not to let his mind rest on a subject which makes him false.

You will perhaps reply to this, that as long as a man is sane he has a power of control over the effect

of words on his mind, and that there is therefore no need for you to be so particular till he is delirious. But he has also a power of control over the effect of food on his body. An unwholesome meal does him less harm if he keeps quiet after it, than if he wilfully chose to disturb and excite himself immediately. That is no excuse for your giving him the wrong sort of food. The patient's duty is to resist so far as he can whatever evil influences, physical or mental, he may be subjected to; and your duty is to prevent his having any avoidable evil influences to resist, so that the vital power may be left free to grapple with the disease, and with the unavoidable causes of evil which are sure to be present even when you have done your best to eliminate them.

In all cases where the moral health is affected, make your treatment as regular and as little spasmodic as you can, so as not to let the patient lose ground intermediately. Look out for motives which will influence him steadily and continuously, and be cumulative in their effect, and avoid as much as you can appealing to those which tend to wear out and grow weak by use. Try to make the patient feel that every single effort on his part is so much gained, whether he be visibly successful on the whole or not. Get him, if you can, to be content to make unsuccessful efforts. Teach him to feel that the effort to control himself is worth making in itself for your sake, or for the sake of whatever he cares most about. And make him feel, too, that, apart from all question of success, two efforts are worth more than one, and trying for an hour to be good and to do right, is worth six times as much as trying for ten minutes. He may or may not

succeed in doing exactly the thing you have asked him to do ; but in any case the steady fixing of his mind on some one purpose, the continuous effort to do or avoid doing something on the score of right and wrong, can hardly fail to brace and invigorate the nerves.

This applies especially to what is commonly called "hysterics." An hysterical patient should never be scolded or startled into repressing her cries and struggles. Hysteria suddenly suppressed usually either returns with a violent reaction, or changes itself into some form of neuralgia or brain affection. The aim of every one about an hysterical girl should be to make her feel that hysterics are at a discount in the house, that no one is particularly alarmed by or interested in individual attacks, but that, on the whole, she rather loses caste by being known to be subject to them. Some friend — some one whom the girl likes and respects — should take opportunities occasionally, when alone with her, of explaining to her that she can, if not control, at least prevent such attacks by care, and that it is her duty to avoid all such excitement and fatigue as increase the liability to them. She should never be irritated by any harshness or by any show of contempt or want of sympathy while the fit is on her, but made to feel steadily and always, what is true whether she feels it or not, that her disease is a misfortune and somewhat of a disgrace, and imposes unpleasant restraints upon her, and deprives her of many pleasures.

CHAPTER IV.

HOW TO HELP DURING INFANCY AND CHILDHOOD.

WILD animals, happily for their offspring, have not the power of pounding up all conceivable vegetable and animal substances into attractive paps, wherewith to feed their young. They have never been taught by family tradition the immense importance of greeting them, on their first appearance, with a jorum of sugar and butter; and yet their young survive!

In the human species, the time during which the infant is totally dependent upon the mother is extraordinarily lengthened, and the youth of man is longer than the whole life of most animals. This long infancy and slow maturity are the sources of progress in the human race. Without this long interval for instruction we should be but wild animals, living by instinct, with no pleasure beyond that of existence, no joy but in the gratification of our passions, without experience, without knowledge.

When we contend that the rearing of babies should be a matter for education, we would not hint that there are any hard-and-fast rules, the carrying out of which would render of secondary importance the constant tender watching of the mother. Such rules,

indeed, might largely apply for the welfare of the body, but who shall legislate for the mind? Health is "a sound mind in a sound body"; we may feed the body by rule, but the culture of the infant mind rests in very great measure upon that delicate tact and discernment which, combined with love of children, is the peculiar gift of a woman, but varies infinitely in different mothers.

The infant comes into the world perfect in form, but powerless to act, with a mind as yet untaxed by thought, wakening to the thousand external impressions which shall hereafter sway it, yet possessing a bias inherited from the mingled sentiments of many ancestors—a bias which should not be overlooked because it does not render itself at once apparent, but should be carefully observed, in order that it may be softened, strengthened, or guided by a mother's gentle influence. No mother can be too thoughtful, too refined, too highly gifted with knowledge for this important task, for the effects of this earliest guidance are traceable throughout life.

NERVOUS SENSIBILITY.—It is a matter of the commonest knowledge how infinitely children vary, even from very early infancy, in temper; they vary equally widely in nervous sensibility to all external impressions. A flea-bite, which will pass unnoticed by one infant, will send another into a fever; the irritation of the gums in the teething of one child will cause convulsions, while another will scarcely suffer at all. One infant will remain placid and still and pleased for hours—it is a good baby; another will chafe and fret if not constantly attended to—it is considered naughty; yet these are two definite degrees of sensibility, which

every mother should recognize and allow for, and every doctor should know; for the placid child may pass with little notice into a dangerous state of illness, while the irritable infant is in a fever with a flea-bite.

WHEN AND HOW TO FEED A CHILD.—Except in particular cases in which the advice of the doctor in attendance should always be obtained, the child does not require anything sooner, and can be given nothing more suitable to its earliest requirements, than that which it naturally derives from its mother. For the first twenty-four hours it requires no food of any kind, and it should not be *forgotten that the first supply of the mother's milk is always purgative.* And further, provided the mother's health be good, and she be able to nurse her child, *no other food whatever is necessary before it is six or seven months old.*

During the first month an infant should be nursed every two hours; afterwards the interval should be gradually prolonged to three or four hours. Too frequent feeding is one of the commonest causes of illness (sickness and diarrhœa) in infants. It is, of course, important that the mother should get as many hours of uninterrupted rest at night as possible; and by giving the last meal late in the evening, and keeping to the same time, say eleven o'clock at night, the baby will sometimes get into the habit of resting contented for four or five hours, thereby recruiting its own digestive power, and allowing its mother time for a refreshing sleep. When maternal rest is imperative, the baby may be fed once during the night by the nurse with a little weak milk and water.

Babies should be as soon as possible made to sleep

in their cribs, instead of being lulled to rest in their mother's arms; they will very readily get into the habit, and thus interfere less with other household duties — an important point with poor people.

When the mother is from any cause totally unable to continue to suckle her child before it is six weeks old, a wet-nurse should, if possible, be obtained, and should be most carefully selected by a medical man. Supposing that a nurse cannot be obtained, the child must of course be fed by hand.

The four constituents of milk which render it sufficient for every requirement of an infant are sugar, cream, or fat, albuminous matter (*casein* or *curd*), and salts. Human milk, and that of other animals, contain these substances in various proportions, each variety being best adapted to the wants of the particular species.

Cow's milk is heavier than human milk, for which it is most commonly used as a substitute; it contains more albuminous matter, a larger proportion of salts, and is less sweet. In order to render this milk better adapted for the consumption of the infant, it must be diluted with water, and sweetened. The amount of dilution must vary with the age of the child: at first, an equal part of water, or even a little more, if the milk be very good; indeed, until the child is a fortnight old, one part of milk to two of water with a little cream is the best mixture; after the child is a month or six weeks old, about a third part of water must be added; after three or four months a fourth part of water, and, when the child is five or six months old, the milk may be given undiluted. The infant should be raised in the nurse's

arms while taking the bottle. It is a common but improper practice for nurses and mothers to feed their children while lying flat on their laps.

The amount of milk or milk-and-water given at each meal must also vary with the age of the child — from six to eight tablespoonfuls, or even less, every two hours at first, gradually increasing to a small cupful every four hours, when the child is five or six months old. A small lump of loaf sugar, or half a small tea-spoonful of *sugar of milk* should be added to each bottle of milk to sweeten it. Moist sugar should never be used for this purpose, on account of its liability to set up fermentation in the milk, and thus cause it to disagree. Cow's milk curdles more firmly than human milk, and for this reason sometimes disagrees. To rectify this, *lime water* may be substituted, either in part or altogether, for the water; or *carbonate of potash* may be added, in the proportion of a grain to each ounce of the milk; the former addition is most useful when the milk has a tendency to produce diarrhœa, the latter when the reverse is the case. By these means, also, a certain amount of acidity, not uncommon in the milk of stall-fed cows, may be rectified. A small quantity of cream, one or two tea-spoonfuls to the half-pint, is often a desirable addition.

The milk should be warmed by holding the bottle containing it in hot water. When, notwithstanding the above precautions, it disagrees with the child, it should be boiled, by which means the proportion of curd is much diminished. It matters very little what feeding-bottle is used, so long as it *draws* easily, and can without difficulty be kept perfectly clean. It should be rinsed out with clean water every time it is

used, some clean water should be drawn through the tube, and the mouthpiece cleaned, and the tube and cork placed in water until again wanted. The smallest drop of milk left in the bottle or tube turns sour, and will inevitably set up fermentation in any milk which is added to it, and make the child ill.

TAKING THE CHILD OUT.—But proper food is not the only thing which is essential to a child's health, if not to its life. Good fresh air, abundance of light and warm clothing, are scarcely less so. The nursery, even for the smallest infant, should be the most cheerful room in the house; airy, well lighted, its walls hung with attractive pictures. For the first two or three weeks, before the infant can be said to have migrated into the nursery, the light must not be too glaring. The child should be washed all over with warm or tepid water at least once daily. In summer-time it should be taken out in fine weather once or twice a day after it is a fortnight old, at first for a short time only; in winter-time it should not be taken out until it is at least a month or six weeks old; it should be carried by the nurse until it is four or five months old; by this means it is kept warmer, and, from frequent change of position, gets more exercise. After this age, however, a carriage is to be preferred, well supplied with wraps, and with a hot-water bottle for the feet. *Care being taken not to throw anything over the face to shelter it from the sun in such a way as to produce suffocation, as has sometimes been the case.* If the covering falls upon the face of the child, there is great danger of its being drawn or sucked into the mouth by the process of breathing, and suffocation is the result. The simple plan of carrying

an infant is, perhaps, the best for all purposes. By the frequent change of position there is no chance of the limbs becoming cramped, while much exercise is secured to the back; but caution is necessary here, for some infants are particularly weak in the back, and must only be held in a sitting position for a very short time together. Others, again, especially when insufficiently or improperly fed, are apt to become deformed by the bending of their thigh and leg-bones in the directions in which they are drawn by their own weight. These infants must be kept lying down much longer than others.

It is of the utmost importance to keep children warm; and the younger the child is, the more carefully must this rule be observed. Young infants have no means of keeping themselves warm, and are in this respect, as in others, wholly dependent upon those about them. It is a mistake commonly made by robust people, who say that children are made hardy by exposure to cold. Provided it be abundantly supplied with good fresh air, a child cannot be too carefully protected against chills and draughts. An apparently trivial discomfort, namely, coldness of the feet, should always be looked for and obviated; for it often leads to much suffering, particularly from uneasiness and cramps in the stomach.

TEETHING. — At this period of the infant's life all the digestive organs undergo a rapid development, awakening from comparative torpor to that state of activity which is necessary for the conversion of inanimate vegetable and animal foods into living muscle, nerve, and bone; and the presence of teeth is a mere mechanical item, it is true a very important one,

in the long catalogue of agents that come more prominently into action in the digestion of solid food.

Those who have had experience of infant management are well acquainted with the symptoms these stages present. Diarrhœa, sickness, and fretfulness, are frequent. The child carries its fingers impatiently to the mouth; but, if there are no signs of a coming tooth, the cause of irritation is little suspected.

Cases of mismanagement during teething which have come under observation illustrate thousands of others. A thoroughly healthy child that has been properly fed (*i. e.*, on milk), suddenly, perchance, shows disturbance of health; the mouth is hot, the child is fretful, and cries from thirst. Instantly he is supposed to be hungry. A meal is given, which is almost immediately rejected. After a little time the fretfulness increases; food is again administered with the same result. The nurse now exclaims that "milk no longer agrees with the child — it is too poor; and that better food must be given." The mother becomes alarmed, and, without consulting a medical man, adopts the nurse's views. Arrowroot, sago, tapioca, baked flour, barley groats, beef tea, veal and mutton broth, are all tried in succession, and found not to agree. Still a prey to anxiety, the parent asks advice of every matron within reach; innumerable remedies are tried; finally diarrhœa or convulsions set in. Then the doctor is sent for. He does what he can to palliate suffering, but the healthy constitution of the child has usually sustained a shock which remedial measures are long in removing.

Too frequently, diseases thus originated run their course, and the life of the little one is sacrificed.

Death is then ascribed to "teething." But if a post-mortem examination were made, would the seat of disease be found in the mouth, or in the disordered regions of digestion? Granted that the natural food disagreed with the infant for a time; granted that the irritation extended to the coats of the stomach; are these any reasons why the unoffending member should have been loaded with a description of food to which it had hitherto been unaccustomed? Would it not have been better to suffer the irritation to subside, to let the stomach rest for a while, instead of heaping on it double work? In any case, would it not have been safer to wait until signs of exhaustion were apparent, or traceable to want of better nourishment? After a few days' watching, giving less instead of more food, the appetite would, in all probability, have returned.

It is particularly important, on account of the feverishness to which an infant is subject during the period of teething, to secure it against the cold, and especially to keep it out of draughts, care being taken at the same time that the air is kept pure by proper ventilation. Children during this period are very subject to attacks of bronchitis, which are often very serious; they are often, too, seized with much "wheezing" on the chest, and seem to be about to have some very severe chest complaint; but the symptoms pass off as suddenly as they appear. Restlessness at night is commonly associated with the feverishness of teething: a warm bath before going to bed is a very useful remedy for this; *opiates* or *soothing syrups*, most of which contain opium, *should never be given*; the slumber they produce in these cases is unhealthy and unrefreshing. In the event of

any nervous symptoms arising, as spasmodic croup, or convulsions, the infant should immediately be placed in a warm bath, and medical aid should be sent for.

The treatment of an infant undergoing the critical process of dentition, should consist in strict observance of the rules of health. More air, more water, more repose, are needed; and *greater regularity in feeding should be observed.*

The lesson which these disastrous consequences teach us is, *never to change an infant's food when the cutting of a tooth may naturally be expected.*

TEACHING THE CHILD TO WALK. — Babies should learn to exercise and to *feel* their limbs from a very early age; a good arrangement for this purpose is to have a soft rug on which they can lie, and kick about at pleasure. But mothers should not be in too great a hurry for their children to walk. They should never be supported on their legs, except for a very short time, before they can support themselves. A child will naturally stand alone and walk just as soon as it has the real ability to do so. A premature effort on the part of the parents is very apt to produce crooked legs, and sometimes more serious deformity. While babies require much sympathy in all their little doings, they should yet be encouraged to amuse themselves alone for a little while, tumbling about upon a mattress or hearth-rug; they thus, when about twelve to eighteen months old, soon begin to toddle on their own account; and, by exercising their limbs and back, gain in strength and self-confidence, and become less entirely dependent upon their mother for amusement.

MORAL TRAINING. — An infant should from the

first be reared in obedience to its parents; it should not be allowed to have every momentary whim gratified until it is of a certain age, and then suddenly checked here and scolded there for little errors it has been led into by such previous neglect; this would be the surest way of producing ill-temper and wilfulness. A child should never be harshly reprov'd, it should never learn to *fear* its parents; deceit and lying are the necessary consequences of such a feeling.

In illness the effect of previous moral training is very noticeable, and the result is too often very deplorable. The falsehoods that are told to the children of some parents when they are ill are innumerable; if they are to have a tooth out, they are told "it won't hurt them"; if they must take nasty medicine, they are previously persuaded that it will be rather nice. They are, of course, too sharp to be taken in a second time by the same kind of falsehood, so others are told them: "that something dreadful will happen" if they do not take their medicine — "a policeman be called in," or "the doctor sent for again"; and the unlucky practitioner, who had previously taken much pains to get on good terms with his little patient, is looked upon at his next visit as a kind of bogey, or minister of torture, and it is then most difficult for him to treat a child successfully whom he never sees in a natural condition, but always in a state of nervous irritation and fear.

Even very little children will quietly endure much of what is to them real suffering and annoyance if, firstly, they are never threatened with it, or obliged to undergo it unnecessarily; secondly, if they know (and very little children know this) that they gain the ap-

proval of those they love and respect by their obedience; thirdly, if from their earliest experience they have been obliged to submit to a more powerful will than their own. In nine cases out of ten in which these things are not foreseen, it may only be a case of a continual series of squabbles and fights through an illness which, nevertheless, terminates favorably, but in the tenth case it is of vital importance; and where a properly trained child will recover, a fractious one will die.

DISEASES INCIDENT TO INFANCY AND CHILDHOOD.

—The diseases of children are very numerous, and some are, at least in the present state of sanitary science, inevitable; but a still greater number may be prevented by careful attention to cleanliness and proper feeding, ventilation of rooms, and the avoidance of exposure to cold and damp.

Children may inherit a tendency to many diseases, of which mental disease, and scrofulous affections, are the most common; but we say advisedly that they inherit a *tendency* to these diseases, for they can rarely be said to inherit the diseases themselves, most of which do not appear until after the period of childhood, and may, by judicious foresight and management of the health in childhood, be altogether warded off.

Before proceeding to discuss separately a few of the more common diseases of infants, we must first state that our principal object in doing so is to give such information as may lead to the prevention of those diseases which are preventible, and to the early detection of those which are not; and though we may add such hints on treatment as may be safely followed by

a judicious mother or intelligent nurse, we purposely abstain from doing more. Medical advice must always be obtained in serious illness; and as there are no diseases so hopeful to treat, so there are none so dangerous to neglect, as those of infants and children.

THRUSH is one of the earliest of the acquired diseases of children; it may occur at any time after birth. In this disease, the tongue, throat, and inside of the mouth are covered more or less completely with small white specks, like minute flakes of milk; there is considerable dryness and soreness of the mouth; the infant is fretful, its cry hoarse; diarrhœa commonly comes on towards the end of the attack. This disease is very liable to attack weakly infants, but with great care may almost always be prevented. It commonly occurs towards the termination of exhausting diseases, and is then often a fatal symptom. It is due to a vegetable parasite of the fungus tribe, which is developed in any sour milk or sugary substance which may adhere to the mouth of a delicate infant, or it may find a lodgement in the altered secretions of the mouth in exhausting diseases. One of its most fruitful sources is the sugar and butter and gruel given to the newly-born infant; want of cleanliness is another common cause. In the treatment of this disease the feeding apparatus must be carefully looked to, everything coming into contact with the infant's mouth must be kept absolutely clean, the mouth must be carefully cleansed after feeding, with a moistened cloth, or a tea-spoonful of clean water, or water containing chlorate of potash (ten grains dissolved in an ounce). Or take equal parts, by weight, of borax, saltpetre, and loaf sugar; pulverize thoroughly all

together in a mortar, and use two or three times a day by putting a very little in the child's mouth. Though a serious malady, thrush is rarely of itself fatal.

WORMS.—The presence of these parasites within the body is usually indicated by the child grinding its teeth, rubbing its nose, and capricious appetite. The positive evidence of worms, however, is in finding them in the child's evacuations. The proper thing to do is to regulate the child's digestion, but in the meantime you can dissolve a lump of bitter aloes of the size of a large hazel nut, in half a pint of hot milk, and give as an injection; and occasionally allow the child to inhale spirits of turpentine, by holding a cloth having very little upon it to the nose, for an instant only.

DIARRHŒA is a very common disease among infants. Leaving out of consideration irritant poisons and epidemic influences, it is caused principally by — (1) errors in diet; (2) rapid changes of temperature; (3) nervous irritation — *e. g.* teething; (4) the subsidence of an acute disease. The first impulse of the mother or nurse is usually at once to check the diarrhœa with a dose of chalk mixture — this should not always be attempted.

The diet must be always rigidly inspected on the occurrence of diarrhœa. The infant may be fed too frequently; there may have been previous irregularity of the secretions; the mother may have taken some article of diet which disagrees with the baby; if weaned, the milk may be too heavy, or slightly acid; in these cases there is commonly sickness accompanying the diarrhœa, and the infant suffers much from cramp and flatulence. A preliminary small dose of

castor-oil — which should never be given *cold* — a return to proper diet, the dilution of the milk with one-third or one-half of lime-water, and warm flannels to the stomach, will, in these cases, very likely restore the infant again to comfort; if not, further advice must be sought.

Diarrhœa from rapid changes of temperature may be prevented by flannel bandages applied to the stomach (which are often left off much too soon), carefully keeping the feet warm, avoiding draughts, and early accustoming the child to daily cool or cold sponging. Some children are more subject than others to this form of diarrhœa; it is more common in summer than in winter, because at this time, owing to light clothing and greater exposure in the open air, children are more subject to cold chills. A tea-spoonful of chalk mixture, or a little peppermint, will usually check it. When cholera is prevalent, all cases of diarrhœa, even the most trivial, should be at once attended to.

Whilst teething, infants are very liable to attacks of diarrhœa; these attacks are often very irregular, severe while they last, and perhaps followed by constipation; the infant is much distressed with flatulence, and is very fretful and feverish. On examining the mouth it is perhaps seen that one or more teeth are making their way through the gums, giving rise to much irritation, causing swelling and heat of the gums, a great flow of water from the mouth, or, in more severe cases, dryness of the gums and mouth generally.

In managing the diarrhœa of infants who are cutting their teeth, it must be borne in mind that, as we

have before pointed out, the diarrhœa may not, and commonly is not, due to the irritation in the gums alone acting on the secretions through the nervous system; the whole alimentary canal of the infant is at this time in a state of great activity; the numerous glands with which it is plentifully supplied are growing very fast; and consequently any little error in diet, so small as scarcely to be avoidable, or any irritating materials in the bowels, may very readily give rise to diarrhœa. It is often advisable, therefore, to give a little rhubarb and magnesia, or a small dose of castor-oil, before trying directly to check the diarrhœa, and this simple expedient often suffices to arrest it. The opposite plan of immediately giving some drug to check the diarrhœa is much to be deprecated, since, if the secretion be too suddenly stopped, more serious symptoms, such as bronchitis, or inflammation of the lungs, or convulsions, may arise. It is sometimes most difficult to improve the disordered condition of the bowels in infants while teething: a total change in diet, and the substitution of prepared food for the milk. For this purpose, take the best wheat flour in sufficient quantity — a cupful or so — put it dry into a proper cloth or bag, and tie up closely, and boil in the same way as a batter-pudding, for from four to six hours. The water should be boiling when put in, and kept boiling all the while. When dry and cold, remove the outside crust, and from the inside scrape or grate a sufficient quantity for immediate use; boil with milk, making a kind of gruel about the consistency of cream, add a little salt and refined sugar. The flour being thus cooked a *second time*, in the process of making the gruel, will

be found to agree with, and have a better effect than almost any other kind of artificial food. Or animal food given alone in the form of finely pounded and prepared raw meat, may be necessary; but in all such cases medical advice is indispensable.

In some cases the diarrhœa arising from any cause takes on a dysenteric character, and the little sufferer is reduced to the lowest possible condition, which not uncommonly proves fatal, and always requires much skill and attention, both on the part of the doctor and nurse, for its successful treatment.

Sometimes, at the end of an attack of measles or other acute illness, a sharp attack of diarrhœa comes on; this should not be hastily checked, as it is usually of a salutary character.

CHOLERA INFANTUM.— This disease usually occurs, if at all, during the period of teething, or between the third and twenty-third months of the child's age. It is characterized by a considerable degree of feverishness from the first, then by diarrhœa, and a little later by vomiting. Emaciation commences very soon, or within a few days, the hands and feet become cold, the head and surface of the abdomen hot, the skin dry and harsh, the countenance pale and shrunken, the eyes dull and heavy, and the pulse irritated, small, and quick; by degrees the child becomes sleepy, and finally sinks into a state of insensibility.

Teething, improper food, or irregular and over-feeding, high atmospheric temperature, and impure air, are among the causes which produce it. Put the child into a warm bath, or apply wet, hot cloths to the abdomen; and, in case no physician can be had, take peppermint-water and dissolve a moderate quan-

tity of gum-arabic in it, and give a spoonful every half hour. If there is a craving for acid, lemon-juice or lemonade, with gum-arabic, may be given either hot or cold, as indicated. This is about all that can be done without the advice of a physician.

ACUTE SPECIFIC DISEASES. — There are a few facts about measles, whooping-cough, scarlet fever, small-pox, chicken-pox, typhus and typhoid fevers, diphtheria, and croup, with which every mother should be acquainted. These are all more or less contagious.— small-pox, whooping-cough, and scarlet fever most so; they all run a definite course, which cannot, so far as we know at present, be cut short by any special remedy; they are all attended with a more or less high degree of feverishness; and though the disease in every case affects the whole system, yet each particular disease also specially affects some one or more organs of the body. These complaints are also, with the exception of whooping-cough, diphtheria, and croup, characterized by some peculiar rash upon the skin.

MEASLES is most common in infancy and early childhood, but may occur at any age; the child may have been ailing for a few days, when it becomes drowsy and fretful, and appears to have a bad feverish cold in the head, with cough, and watery discharge from the eyes and nose, and slight sore throat, itching of the face, and the eyes are red and sensitive to the light. On the fourth day of these symptoms, a motting rash of a faint mulberry hue first appears on the forehead, about the roots of the hair; this soon spreads over the whole body in little dusky spots, which often run together into curved patches of a

crescent or half-moon shape; the rash subsides in three or four days, or a week.

Inflammation of the lungs is particularly liable to occur in connection with the measles, and should be guarded against by every precaution. Rest in bed, in a moderately warm room, with milk diet, are all that is necessary in an ordinary case of measles. The disorder usually subsides in from a week to ten days.

WHOOPIING-COUGH. — This complaint is caused by the swelled and inflamed condition of the finest capillary bronchi, or air-tubes. The spasms are occasioned by the irritation which arises from confined carbonic acid in the alveoles, or air-cells. Hence, after a fit of coughing, the confined carbonic acid having escaped, and fresh oxygen admitted to the air-cells, an interval of freedom from every symptom is procured. It is usually preceded, for a week or a fortnight, by a slight cough, having no particular character; then it becomes distinctly paroxysmal — that is to say, each fit of coughing consists of a rapid succession of coughs, lasting until the breath is quite exhausted, and the child seems to be at the point of suffocation, when a deep breath is drawn, usually with the loud and characteristic “whoop,” and in a few minutes the child begins to play as if nothing had happened; in more serious cases the cough produces much exhaustion, and sometimes convulsions, in which case advice should be at once sought; and sometimes, from its violence, causes bleeding from the mouth and nose, or red patches on the eyes, from rupture of some of the small superficial blood-vessels. When there is difficulty in breathing, great relief may sometimes be

afforded by the application of hot poultices to the chest.

This disorder runs its course in about a month, but the peculiar cough may, in weakly children, be continued for months. Babies frequently have the whooping-cough without ever giving the characteristic "whoop," and children of three or four years do so sometimes. The violence of the cough may be, to a certain extent, allayed by appropriate medicines; the child should be kept in a warm but well-ventilated room, and supplied with light, nutritious diet. After a month, if the cough does not soon cease, a change of air, especially to a warm sea-side place, has usually an immediate salutary effect. Tonic medicines are very useful when the specific stage of the disease has passed.

SCARLET FEVER, OR SCARLATINA, are two terms having exactly the same meaning, though the latter, *scarlatina*, is often regarded popularly as signifying a milder form of the fever. The disease begins with feverishness and sore throat; on the second day, or sometimes the third, a scarlet rash, like that produced by a mustard poultice, appears, first at the top of the chest, and then gradually spreads all over the body. Even in its mildest form this disease is a dangerous one, and for this reason, that it is then more likely to be neglected.

Scarlet fever, though somewhat resembling measles, may be easily distinguished from it by the absence of *cough*; by the eruption, which is *finer*, and of a more *scarlet color*; by the rash coming out on the *second* day of the fever, instead of the *fourth*; by the ulceration of the throat; by the appearance of the

eruption, which in measles is of a lighter color, and of the shape of a half or quarter moon, while the eruption of scarlet fever is in patches, or general, without any particular shape; and by the color, measles being a bright *raspberry red*, and scarlet fever a bright *scarlet color*.

The one thing, above all, to attend to in scarlet fever, is to *prevent the little patient from becoming chilled*; the room should not be over-heated, but it should be kept of a constant warmth. In the absence of a good physician, the following will be found very useful and efficient: "As soon as the signs or symptoms are sufficiently marked to make it certain that the complaint is scarlet fever, let the child be undressed and put to bed; cover the abdomen with a dry flannel, then take a bed-sheet, fold to sufficient size, put it into boiling water, and wring as dry as possible, by means of dry towels, and apply to the abdomen of the child, *over*, or on the outside of the flannel previously placed there, and cover the wet, hot sheet with other dry flannel." "In the meantime, prepare some lemonade, make it warm and rather sourish, to which add a small quantity of the mucilage of gum-arabic, and let this be the only drink given while fever is present." "The hot cloth should be changed, or replaced by another, as often as it becomes cooled, until perspiration is induced, which may take place within ten minutes of the first application, if the case happens to be a very mild one, but in some cases may require two hours." "The child will soon fall asleep after the perspiration has commenced, and, on awaking, will show slight symptoms of inclination for food." "Should the bow-

els require attention, administer an injection of oil, soap, and water, of suitable strength and quantity to the age, and the requirements of the occasion." When the rash fades, which takes place in about a week or ten days, the skin begins to peel off; this process lasts about a month; and during this period the child is liable to an attack of *dropsy*, from inflammation of the kidneys; a slight chill is the most common cause of this most serious complication, which is very often fatal. It must especially be borne in mind, that dropsy is just as likely to follow the mildest as the most severe form of the disease, and the child should therefore be kept in bed for at least a fortnight, and in one room until all scaling has ceased.

In some epidemics the throat symptoms are very severe, the ulceration being very intense, and the swelling of the throat outside very great; in these cases it is often necessary for the doctor to make applications to the throat, and much depends upon the mother or nurse in aiding him, and carrying out all his directions.

Warm baths and frictions of the skin give great relief, and are very useful in the *scaling* stage of scarlet fever. The child should not be allowed to go out until all trace of shedding of the skin has ceased. The clothes should be frequently changed; and the room in which there has been scarlet fever should be thoroughly cleansed and whitewashed.

SMALL-POX. — Prevention is better than cure, and a proper regard to sanitary laws is the best preventive against this terrible disease. But should it happen to get into a family, the following will be found useful: The symptoms are headache, nausea,

giddiness, drowsiness, and pains in the head. At the end of forty-eight hours or so, a rash resembling flea-bites breaks out on the face and breast, and sometimes extends to the hands and feet, and other parts of the body. The hands, feet and face swell, and usually there is great difficulty in swallowing. About the fifth day the spots fill with matter, and by the eighth the face is a mass of pocks. In some severe cases the eyes are seriously affected, and in some instances entirely lost. About the eleventh day matter is discharged, the centre of the eruption becomes dark, and scales fall off. The room must be kept cool and shady; cooling drinks may be given, but all solid food must be withheld. The linen should be frequently changed, and the room kept in a state of thorough ventilation. To allay the itching, apply sweet oil, cold cream, or almond oil to the parts. To prevent pitting, keep the parts covered as much and as completely as possible. For this purpose a piece of black silk with holes cut for the mouth, nose, and eyes, can be employed, and, if necessary, muffle the hands, to prevent scratching, or tearing the scabs off.

CHICKEN-POX is a very common and a very mild disease affecting infants and young children. On about the fourth day of slight feverishness of no very definite character, a few spots, small oval blisters like pearls, appear about the shoulders, or chest, or arms, sometimes on the face and head; each of these spots is surrounded by a small area of redness; the disease lasts eight or ten days. In delicate children, the spots, instead of drying up in the ordinary way, become more sore, forming little festers, which are trouble-

some to heal; tonic medicines and change of air, however, soon restore the child to health. Care must be taken lest the child catch cold during this trifling disease, or serious lung disease may be the result.

TYPHOID FEVER is a very serious disease, but in its characteristic form rarely attacks children before they are five or six years old. It is often very difficult to distinguish it from other diseases, acute consumption, etc. Sudden illness, fever and headache, with subsequent delirium or wandering in the head at night, with great general weakness and looseness of the bowels, are the chief symptoms: some characteristic spots usually appear about the eighth day. This disease usually results from defective drainage, neglected privies, and cesspools.

THE REMITTENT FEVER of infants, characterized by diarrhœa and a feverishness, becoming more intense at certain times of the day, and attended with great weakness, and occasionally delirium, is probably typhoid fever in a modified form.

DIPHThERIA. — This disease, though it has prevailed at various places at intervals during the last two or three centuries, appeared as a destructive epidemic at Boulogne in 1855, in England as almost an unknown disease in the following year, and in this country about the same time, and has remained with us, in more or less activity. It may attack the youngest infant or the most aged man. It is very contagious; and nurses or mothers should be very careful not to get any material from the throat or mouth coughed into their faces.

Diphtheria begins with a sense of illness and lan-

guor, with some headache and sickness; the throat then becomes sore, the glands outside the throat enlarge, and white patches may be seen in the interior of the throat. This disease may be mistaken for an ordinary ulcerated throat, or the reverse; but as it is of great importance to detect it in time, all sore throats, during an outbreak of diphtheria, should be closely attended to. In the early stages of diphtheria, a small piece of gum camphor of the size of a pea, held in the mouth, and gradually dissolved and swallowed, will be found useful as a stimulant to the parts affected, by inciting to a more healthy action. It may be necessary to repeat the above at short intervals, *but in no case should the quantity be increased.* In the absence of the gum the spirits of camphor can be employed by pouring a small quantity upon a handkerchief or sponge, and letting the patient inhale it, but great care is necessary not to use too large a quantity. Careful nursing, and cleansing the throat with disinfecting lotions, are necessary in this often fatal disease; and rigid performance of all medical directions must be observed. The diet must consist of nutritious fluids.

CROUP is a special form of inflammation of the windpipe, attended with the formation of a membranous skin in its interior, which may extend down the air-tubes. It is a very serious disease of infancy and early childhood, and requires very prompt treatment. It begins with the symptoms of a feverish cold in the head, attended with cough, which in a few hours becomes husky, and the cry hoarse; then the cough becomes peculiarly metallic, or, as it is usually described, "brassy"; and presently the breathing,

which was before only "wheezing," becomes difficult and labored, the breath being drawn in with a prolonged crowing or cooing noise. All these symptoms increase, and the child is in the greatest distress until the disease either recedes, or the little sufferer is released.

Treatment may do a great deal in this disease, if it be taken in time. The child should be put in a warm bath, the room warmed, the bed brought near the fire, on which a kettle of water is placed, so that the steam from the spout shall come into the room and moisten the air. The application of a mustard plaster to the neck, or throat, is sometimes of great use, giving almost immediate relief. The plaster should not be allowed to remain on too long; the skin should only be brought to a high degree of redness. *A blister should not on any account, nor under any circumstances, be applied to a child, without the advice and direction of a physician.* The doctor must be at once sent for.

FALSE CROUP is not uncommon in children, especially while teething; it is a spasmodic affection of the windpipe. The attacks are irregular, and there is but little or no fever. Warm baths, slight aperients, and tepid sponging are the best remedies.

CHAPTER V.

BATHS, BATHING, ETC.

BATHING has two objects: to purify, and to strengthen or invigorate the system. These are very intimately connected, for nothing tends more to enervate or weaken than dirt on the skin; the skin being one of the sources through which the effete or worn-out matter of the system is thrown off by insensible perspiration. A clean skin, therefore, has much to do with a vigorous body; and hence the removal of this effete matter by bathing, accumulated on the skin, and which well nigh stops all the little pores, is a direct way to impart vigor to all the organs. But this is not the only way in which bathing strengthens. By a change of temperature, the cold bath acts on the nervous system, and calls out a freer play of the general vital powers. Cleanliness, therefore, fortifies the body against the attacks of disease, and frequently saves from the necessity of sending for a doctor; and besides, a clean and sound body greatly conduces to purity, strength, and healthiness of mind, thus making a person every way better. On the other hand, untidiness and dirt conduce to the very opposite. The whole body should be washed daily, soap being used

at least once a week, in order to fulfil the demands of cleanliness.

THE WARM BATH should not be too frequently used, though for cleansing purposes it will be found the most effectual, as also for allaying nervous irritation, and for procuring sleep. But except under medical direction, once a week will be as often as it should be employed.

COLD BATH.—The cold bath should not follow immediately on a meal, because the blood should not then be drawn too strongly to the surface, it being required for the work of digestion. The best time for bathing is the forenoon, two or three hours after breakfast. On an average, three minutes in the water should suffice, except for those who are inured. For active swimmers ten minutes may be taken. The great secret of the tonic influence of the cold bath on the skin and general health is the *glow* which follows. It arises from the blood returning in a larger stream to the surface from which it had been partially banished, and it has these two good effects: it is a safeguard against chills through the increased supply of blood to the external parts, and, for the same reason, it wards off internal congestion and other disturbances of the circulation. And besides this effect upon the blood-vessels, it adds another to those natural stimulants of the sensitive nerves, on which the healthy tone of the nervous system so much depends. All these good effects are much aided by vigorous friction with a flesh-brush or rough towel, applied as rapidly as possible. It is bad to let the surface continue wet after leaving the water. *No person should ever use the cold bath when he cannot get the glow*

to follow it ; neither should it be had recourse to under any circumstances, after great fatigue.

THE SHOWER BATH has some advantages ; the stimulus to the nerves of the skin is very great, and the abstraction of heat somewhat less than in the ordinary plunge bath. It is useful, therefore, to certain nervous temperaments ; but some precautions are advisable, if there is any lack of strength. It is a good plan, for instance, to stand in a pan of warm water, to prevent the feet from being chilled, and in some cases to protect the head by an oil-skin cap. This bath should not be ordinarily employed, except by the advice and under the direction of a physician.

VAPOR BATHS are very useful in several forms of disease where sweating is indicated. In the early stages of acute rheumatism, in bad colds and influenza, they often prove very serviceable by cutting them short, or breaking them up. There are many contrivances for giving them, of which the most simple is a hot brick or stone placed in a bucket about two-thirds full of hot water, and beneath an open-seated chair, like the cane-bottomed. It will be necessary to fasten a large blanket around the neck, which shall entirely envelop the body, coming down to the floor on all sides. The prime object being to induce a high degree of perspiration, it may be necessary to put into the water a second, or even a third, hot brick. When perspiration has been thoroughly induced, rub dry with hot towels, and get to bed as soon as possible.

TURKISH BATHS, although no doubt of great use when judiciously taken, should not in general be ventured on except under the advice and direction of a competent physician.

SEA-BATHING. — A course of sea-bathing should never be taken by an invalid with a view of deriving benefit from it, except under the direction of the attending physician.

SPONGE BATH. — This is available almost everywhere, as it requires only a basin of water, which may be either tepid or cold, according to indications, a piece of sponge or cloth, and a dry towel. In using this bath the body should be sponged rapidly, and immediately followed by an energetic use of the towel and flesh-brush, if there is one at hand, and if not, a coarse crash towel will answer the purpose.

ALKALINE BATH. — This is employed with very great benefit during fevers and some other disorders. It is made by adding a little washing soda to a sufficient quantity of tepid water, and used by sponging the body, as in the sponge bath, but under the bed-clothes, so as not to let the cold air to the patient. Sometimes only a portion of the body can be attended to at a time, the limbs, for example, and then the trunk afterwards, or *vice versa*. It should be performed by a careful and experienced nurse, and generally not without the advice of a physician.

DRY BATH. — This every one can use with benefit, and for the neglect of which there can be no possible excuse. It consists simply in rubbing the body all over with a dry, coarse crash towel or flesh-brush, thereby stimulating the skin to a healthy action.

MEDICATED BATHS. — With the exception of the alkaline and saline bath, these, though numerous, should not be employed except under the advice and direction of a physician.

CHAPTER VI.

CHOLERA, CHOLERA MORBUS, AND BOWEL COMPLAINTS.

ASIATIC CHOLERA.—It is of the first importance to be able to distinguish between the ordinary summer complaints and real, or true cholera. In the former, the fæces or evacuations of the bowels are of a dirty pipe-clay color, and very offensive, showing too little bile; a bright yellow color, with some burning, smarting pain, showing too much bile, bilious purging, or somewhat like pieces of cheese curd mixed with green matter and mucus. *The symptoms of true cholera are,* gentle purging at first, which may continue for a day or two, though sometimes for only a few hours. If this is not attended to at once, and the disorder goes on, the stool, or what passes from the bowels, becomes very thin, like rice-water, without any offensive smell, and all control over the bowels is lost. There is no pain or straining during the evacuation, though there may be severe cramps. In a short time, a few hours at longest, the strength of the patient has all gone, the tongue, and even the breath, have become quite cold, and the nails turn blue. There is usually great thirst and constant vomiting, the eyes sink very rapidly,

and a great change takes place in the voice, which becomes a small squeaking whisper, so unnatural as to be distinguished in a moment by any one who has seen much of the cholera.

It is generally believed that there is no cure for this terrible complaint. Very much, however, depends on taking it in time,—not a moment should be lost. *The time to help is during the early stage*, though no one should neglect to make the proper efforts while there is the least hope of success. The following has proved more successful than any other treatment with which we are acquainted: Get the patient to bed, apply bottles of hot water, or hot bricks, to the extremities. Take half a pint of *pure apple* or *wine* vinegar, add about two table-spoonfuls of common salt, and about two quarts of boiling water. Keep at the scalding point, and wring out flannels and apply to the abdomen as hot as can be borne, changing as often as necessary, so as to keep one on the abdomen hot all the time. If this cannot be had, a mustard plaster is the next best thing to apply. In the meantime take the juice of an ordinary-sized lemon, or, if this cannot be procured, a table-spoonful of *pure apple* or *wine* vinegar will do; add a tea-spoonful of common table-salt, and half a pint of boiling water. Let the patient sip this as hot as possible, and if the vomiting and purging does not cease within two or three hours, repeat the dose. If the lemon or vinegar cannot be procured, then, in the absence of a doctor, an adult may take from eight to twelve drops of laudanum and from nine to twelve drops of spirits of camphor, the hot bricks, or bottles, having, in the meantime, been applied to the extremities, and the

mustard plaster to the bowels. With children the dose must be in proportion to age; a child of twelve years of age requiring about one-half, and one of six one-quarter as much as an adult. The dose should be repeated as often as every half-hour until the pain, or evacuations, or vomiting, continues. The cramp in the bowels, which, in some cases, is very severe and fatal, will, in general, yield to the treatment by fomentations of salt, vinegar, and hot water, as above indicated.

CHOLERA MORBUS.—This complaint is generally the result of eating unripe or partially decayed fruit, and bad vegetables, and more commonly occurs in the night. It is distinguished by sudden and frequently severe vomiting, cramps in the bowels, and purging. There is also usually considerable thirst, though the skin is quite cool. It is not generally of a serious character. The treatment laid down for summer complaints will apply here, and to which we refer the reader.

DYSENTERY.—Care should be taken to *avoid* this disease, as it often becomes serious in its character. Sometimes it becomes epidemic, and proves suddenly fatal. Crude indigestible food, unripe or partly decayed vegetables and fruit, the breathing of impure air, a sudden chill or cold, strong drastic cathartics or purges, and the use of bad or impure water, are among the causes which induce it. This complaint is marked by considerable feverishness, according to the extent of the irritation of the bowels, griping pain usually near the lower portion of the bowels, causing the child to scream, by times, as if in some fright, more or less of delirium or cold shivers, dis-

charges of bloody mucus, and constant desire to go to stool. For treatment, apply fomentations to the bowels as in summer complaints, and use the peppermint water and gum-arabic as there recommended. If this does not succeed, and you cannot procure a physician, make the following cordial: Take equal parts, by weight, of best rhubarb, super-carbonate of soda (baking soda will do), and pulverized cinnamon, mix thoroughly; of this take a tea-spoonful, put into a cup, add about a gill of boiling water, cover, and let it stand until cold, pour off from the dregs, add some peppermint-water containing the gum-arabic, or a drop or two of the essence of peppermint if peppermint-water cannot be had, and the dissolved gum-arabic as before, sweeten with a little loaf, or refined sugar, and give a table-spoonful (if a child of ten or twelve years) every twenty minutes or so, until the character of the stool is changed. It however sometimes happens, that nothing administered in this way will reach the disease. In such a case, and if you are obliged to go on without a doctor, an injection of starch about the thickness of thin gruel may be employed. Take a table-spoonful for a very young child, add one drop of laudanum if you have it, and if not use without; with a suitable syringe throw this up into the child's bowels, and keep it there as long as possible, and repeat it two or three times in the course of twenty-four hours. From the first the child should be kept as quiet as possible, as rest and a recumbent position are essential to comfort and recovery.

COLIC.— This consists of pains in the bowels without purging, and can generally be relieved by the

application of hot fomentations, as in summer complaints, and a little ginger, nutmeg, or cinnamon-tea.

CONSTIPATION.—For obstinate constipation of the bowels, use nothing but warm injections (except by advice of a competent medical man).

SUMMER COMPLAINTS IN GENERAL.—To give specific remedies for summer complaint in any, or all, of its almost endless forms, would be foolish in the extreme, for no one can correctly treat any disorder, whatever its name or symptoms may be, without thoroughly understanding the minute anatomy of the parts affected. The following is about all that can possibly be said on this subject: Until a good, common-sense physician, who has a competent knowledge of anatomy, can be procured, let wet hot cloths be applied to the abdomen; it is always harmless.

Never attempt to arrest suddenly any diarrhœa by any kind of medicine, however highly recommended; diarrhœa is only the consequence or result of the disorder, and not the disorder itself. One of the greatest mistakes which is committed, is the premature arresting or removal of symptoms, without comprehending their cause and nature. Thousands die annually of this foolish mistake. In case no physician that is worthy the confidence of the afflicted can be obtained, the following is allowable: Take peppermint-water, and dissolve a moderate quantity of gum-arabic in it, and take a spoonful of it every half hour. For pain in the abdomen use hot water applications ONLY. The region of the stomach, in such cases, will almost always feel cold to the hand. Eat and drink nothing until a decided

craving for a certain article manifests itself. If this craving is for acids, lemon-juice, or strong sour lemonade, with gum-arabic (hot or cold, as indicated), is the proper thing; if for salt, Saratoga star spring, or any similar saline *spring* water, is the correct thing. Salt is one of the most necessary ingredients for the blood, especially in the hot season. Next comes vegetable acids. All acid fruit is healthy, while sweetish and pulpy ones are more difficult of digestion, and sometimes somewhat risky, especially in combination with other food or water. It is hardly necessary to remark that people should eat less heating food in summer than in winter. Children should live, in summer, principally on milk, good coarse bread, and fruit. To drink excessive quantities of water, especially lake-water with ice, is foolish and dangerous.

Small children should be lightly dressed, and should wear a flannel bandage around the abdomen, instead of the chest. When a child shows the slightest symptoms of disorder, it should be brought to bed immediately. It should next be properly examined by a *competent medical man*.

If an adult experiences difficulties in his abdomen, he should call in a physician; if momentarily prevented from doing so, and must keep on his feet, he should put a flannel bandage around the abdomen: 1st, to keep the intestines warm; 2d, to prevent any unnecessary motions of them brought about by exercise. If possible, take to your bed at once, and before it is too late; and unless you have a knowledge of dietetics stop eating and drinking, until you have informed yourself of what is best or most

suitable under the circumstances. Simple water may be as dangerous in some particular cases as poison. If there is an inclination to vomit, put your fingers in your mouth and encourage it while lying on your stomach. Take no medicine whatever until you know what it is and what it is for—because by so doing you may, through foolish confidence in medicine, neglect to do what should be done; and besides, if it is any very effective medicine, and one which is not indicated by the disorder, it will do very great injury. Any medicine that can be effective for good, is equally powerful for mischief if injudiciously used. In eating, consult your instinctive taste in preference to anything else.

CHAPTER VII.

MISCELLANEA.

COUGH. Never doctor a cough as such. It is a symptom — not a disease — a faithful sentinel, giving warning of danger. Many a cough has been cured, or, rather, the bark of the faithful watch-dog silenced, to result only in the loss of health and life. Seek to have the cause of disturbance removed, and the cough will take care of itself.

COMMON COLD.—A cold, however slight, should never be neglected; more particularly in children, whose tissues are still unconsolidated, and therefore delicate. Take anything at bed-time which will promote perspiration, such as hot whey or lemonade. Let the patient put the feet in hot water, not above the ankle, with a small handful of common salt in it; or let him take the vapor bath, as described under that head, and let the bed be warmed, otherwise the sudden chill may destroy the effect of the remedies. When a person has only a slight cold, a pint of cold water drank on going to bed, with the addition of some extra bedding, will often prove a good remedy.

INFLUENZA.—The primary symptoms of influenza are much the same as those of ordinary catarrh,

The patient has a sense of tension in the forehead; his eyes become watery, and he sneezes. Discharge from the nose, cough, and oppression at the chest soon ensue. But the chief characteristics of influenza are a dull pain in the forehead, which is very oppressive, and an extraordinary prostration of strength, with mental depression, listlessness, indisposition for the least exertion, and utter want of appetite. The skin is generally moist, and the perspirations which occur are not critical, as they seem to be in certain cases of fever. As the disease advances, the discharge from the nose irritates the upper lip, so as to make it red and tumid; the sense of taste is in general impaired. The best way to manage influenza is, for the patient to give up work or business at once; take a Turkish or vapor bath when practicable, go to bed and remain there for two or three days, or until better; in the meantime induce perspiration by every available means. What is known as wine whey, is sometimes very useful. To make it, take about half a gill of white wine and a tea-spoonful of good vinegar; add a pint of good, sweet milk, put it over the fire and simmer gently, so as not to disturb or break the curd; pour off, or strain, and sweeten; a little spice may be added to please the taste, if required. The patient may take a wine-glassful of this quite frequently. Rest, and a due regard to the diet, is all that remains to be done.

FITS. — These arise from various causes, and are very diverse in character. In children, they frequently occur from *teething*, sometimes from *worms*, or some irritating substance in the stomach or bowels, and sometimes from a disordered condition of the

brain. In fact, the brain is almost always more or less affected. They are usually characterized by clenched hands and bended arms, the legs drawn up, the body arched backward, and limbs twitching violently, insensibility, loss of sight, and of the power to swallow or move. After a time the fit ceases, sometimes by degrees, at other times suddenly — the child fetching a deep sigh, and then lying quiet and pale, as from fainting. It then passes into a sleep, and on waking some hours after, seems quite well. Sometimes it is best not to do anything further than to prevent injury to the child while the fit lasts. But if a child which has been previously healthy takes a fit, it is generally safe to place it in a warm or hot bath, and to sponge the head and face with cold water, at the same time applying cloths dipped in hot mustard and water to the feet and lower part of the legs, or a mustard poultice to the soles of the feet. In either case, the application should be continued until the skin is quite red, but care should be taken not to blister. Fits, it should be remembered, are only symptoms, and not a disease of themselves, and hence the true cause should be sought out. If from improper food or irregularity of feeding, correct this at once, and there will be no more fits. If from worms, use the proper means to eradicate them; if from teething, let the gums be examined, and, if necessary, lanced; and if from disorders of the brain, get the best physician within your reach to attend it. In case no physician can be procured for the time being, then pay particular attention to the diet of the child, see that the food taken is of a suitable character, well digested, and all the evacuations healthy. Keep the

child quiet, and as free from excitement as possible, excluding everything that produces undue nervous excitement. In this way, nature will often effect a cure without any medication.

HYSTERIC FITS. — Ascertain, if possible, the cause, that you may be able to deal with it during the intervals between them. In the meantime, when a paroxysm threatens, let each article of dress be loosened, the patient placed on the floor without a carpet, and dash large quantities of cold water into the face, if need be, to the extent of two or three pailfuls. A little water merely sprinkled into the face only irritates and increases the disorder, while large quantities strongly dashed cuts it short. The patient should then be well dried and put to bed, warm drinks being given, to induce sleep and perspiration. Further particulars may be found in the chapter on the “**MENTAL TREATMENT OF THE SICK.**”

APOPLEXY. — It very frequently occurs that the attack is so sudden that a doctor cannot be procured in time. Now, if you wish to render any assistance, keep calm and self-possessed. Proceed at once to loosen dress, vest, stays, necktie, shirt-collar, cap, string, or whatever else impedes either the circulation or the breathing. In some cases all effort will prove unavailing, and the patient will rapidly pass away. But where anything can be done to help, it should never be neglected. The face will be flushed, and of a purplish hue, and the breathing difficult, with a noise resembling the deep snoring of a person asleep, and the limbs will have lost all power. After having loosened all the clothing as above indicated, proceed to raise the head and shoulders, care being taken not to

bend the head forward on to the breast. Apply cold water to the head, wet cups to the nape of the neck, and mustard plasters to the soles of the feet, having first put them into a hot *bath*. This is about all that can be done before the arrival of the doctor, further than to make the patient as comfortable as possible under the circumstances.

‡ EPILEPSY. — The cause and treatment of this complaint are of such a character as to require the attention of the best physicians; therefore the most that can be done to help will be very limited. Strict attention must be paid to see if certain circumstances produce the attack, in which case these circumstances must be avoided, and, if returning at given periods, to make a break in the habit — as, for example, if they come on at bed-time, the hour must, if possible, be varied. One of the best means of thwarting the attack, when it comes on in the extremities, is to tie a strong ligature around the thigh, or arm. When the paroxysm is on, the thing to be done is to prevent the patient injuring himself. Get something, a piece of india-rubber, a handkerchief, a towel, in fact anything between the teeth in a way to protect the tongue, and at the same time not to interfere with the breathing, or otherwise the patient may inflict very serious injury by biting it.

• TOOTHACHE, EARACHE, ETC. — It is a bad practice to put cotton wool, soaked in laudanum or chloroform, into the ear for the relief of toothache. It is true that it may sometimes prove effectual, and procure a night's rest, for the connection between the teeth and the ear is very close. But let it be borne in mind that the ear is far too delicate and valuable an organ to be

used as a medium for the application of strong remedies for disorders of the teeth, and that both laudanum and chloroform, more especially the latter, are powerful irritants, and that such applications are always accompanied with risk. The teeth should be looked after for themselves, by some competent dentist, and if toothache spreads to the ear, this is another reason why they should be attended to at once; for prolonged pain in the head, arising from the teeth, may itself injure the hearing. In earache everything should be done to soothe it, and all strong irritating applications should be avoided. Pieces of hot fig or onion should on no account be put in; but warm flannels should be applied, with poppy fomentation, externally, if the pain does not soon subside.

IN-GROWING NAILS. — The best thing to be done is simply to get a common saw-file or a piece of glass, and either file or scrape the arch of the nail quite thin, apply a little sweet oil to soften and toughen it, repeat the process if necessary, and in a short time the nail will grow out in a way to produce no discomfort.

WHITLOW, OR FELON. — The worst form of felon is known as the tendinous, and is characterized by severe throbbing pain, with extreme tenderness, little but intense swelling, and a general disturbance of the whole system. In this case the danger is lest the matter should extend along the muscles and tendons, destroying, and causing the limb to be lost or rendered useless during life. The first sensation of pain is usually of a pricking or stabbing character, and seems to be seated in the membrane investing the bone. This is felt from two to three days before any perceptible inflammation has taken place, the pain

all the while becoming more severe, and the point of injury more sensitive to the touch. It is only during the first two or three days that you can do anything to cut it short. This can usually be done by the persistent use of the following: Take pure alcohol, add as much camphor-gum as it will dissolve, wrap cotton wool around the part affected half an inch thick, and keep it thoroughly wet, night and day, with the alcohol and camphor. If this does not cut it short, the best thing to be done is to go to the doctor and have it laid open down to the bone. This will allow the escape of any matter that may have formed there, and prevent it from extending along the muscles and tendons, and save the limb for future use. If no doctor can be had to perform this simple operation, then all that can be done is to make constant application of poultices to the part affected until it is sufficiently ripe for any one to open, which will take from two to six weeks. If neither the alcohol and camphor, or a doctor, can be procured, some relief may be had in the earlier stages, by using strong vinegar, about half a gill, in which a table-spoonful of saleratus (carbonate of potash) has been dissolved. This should be used as hot as can be borne, the patient repeatedly soaking the part affected in it.

BOILS AND CARBUNCLES. — Boils are said to proceed from two most opposite causes — extreme richness and extreme poorness of blood — and their external treatment, though merely temporary, must of course depend on the symptoms. A boil is a single lump, containing either soft matter or a harder substance called a core. The thing to be done is the application of a good poultice, and the wound after-

wards healed by the use of any common healing ointment. When boils proceed from poverty of blood, a generous diet is indicated in connection with exercise in the open air; but when they proceed from excess and high living, a plain diet, with plenty of exercise, is the proper course. A carbuncle differs from a boil in being much larger, and in being composed of cells like a honeycomb. They are much more sensitive and painful than boils, and are very frequently located on the nape of the neck, though occasionally they make their appearance on other parts of the body. Apply poultices, as in the case of a boil, in the meantime, and, if practicable, seek the advice of a physician. But in any case use the best diet you can get, and use acid fruits, such as sourish apples, grapes, limes, and lemons, freely.

BED-SORES. — This is one of the most painful contingencies of sickness, and, though watchfulness and care may often prevent the evil, yet, despite this, they will sometimes afflict the sick; and bed-sores are not only painful to the patient, but *sometimes become gangrenous wounds, which cause death*, even when the disorder from which the patient is suffering is progressing most favorably. This is particularly the case with some forms of fever. They usually form about the bottom of the back, and the hips, and should always be *prevented when possible*. At first there is a little redness, caused by the constant pressure of the body, which, if allowed to go on, the parts die, and a sloughing ulcer is the result. These parts should be examined every day; and the moment the redness appears at the points indicated, bathe them well with spirits and water, and relieve the parts from

further pressure. This can be done by altering the position when possible, and by making little pillows, or pads, and placing them so as to bear the weight. Air cushions and rings have been made, for this purpose, of india-rubber, and by many eminent physicians are regarded the best. Let it be borne in mind that unless proper care is taken in the direction indicated, all treatment will often prove unavailing.

ULCERS OF THE LEG, OR SORE LEG.—Ulcers, or sores on the leg, proceed from various causes : they may originate in constitutional viscid blood, or be the result of an accident, or of neglect on the first appearance of the wound. The smallest sore on the leg of a person advanced in life, ought to be immediately and properly attended to ; *but never attempt the use of quack medicines.* The *cause* must be first ascertained before a remedy can be applied. But the best thing to be done generally, is to get some sticking-plaster, cut it into strips about an inch and a half wide, and long enough, so as *nearly* to meet round the leg. The parts should be made quite clean and dry, the plaster warmed, and then a strip taken with one end of it in each hand ; now fix one end of the plaster on the sound flesh, and carry it over, bringing it down tightly and smoothly across the wound, care being taken not to let it slip. This process should be commenced about two inches below the wound, putting the strips on upward and overlapping about half an inch, like shingles on a house, the lower edge of the second strip coming down over the upper edge of the first strip, and so on, until you have reached a point some two inches *above* the wound. Having done this, *put on a bandage rather tightly, but evenly, from the toes to*

the knees, and see that the leg is kept up. These plasters will require changing at least once a week, and in some cases more frequently; the proper time to change them is when they become offensive or loose. A sore should not be touched with a *rag*, in washing it, during the process of healing, but to cleanse it, pour the water on to it. In case the sore looks pale and flabby, it may be washed with a solution of sulphate of zinc (white vitriol) and water, ten grains being dissolved in about three ounces of water. For further treatment a physician should be obtained.

CORNS AND BUNIONS. — The old adage of “Prevention is better than Cure,” is equally applicable to this discomfort as it is to more serious complaints. Corns are occasioned either by the use of shoes which are too narrow or too short, or too large and badly fitting, or made from material that is hard and unyielding to the foot. Shoes and stockings are the parents of all corns and bunions, and the proper remedy consists in so constructing and adjusting them as to avoid the evil. In the early stage of the corn it is easily eradicated. All that is necessary is to soften the hardened cuticle or skin by soaking the foot in warm water or otherwise, and then remove the corn with the finger-nail. For soft corns dissolve a piece of ammonia of the size of a bean in an ounce of water, and apply hot, which will usually afford relief.

SORE THROAT, resulting from an ordinary cold, can usually be managed by the use of the cold bandage. Take a strip of cloth, cotton or linen, about four inches wide, and long enough to go round the neck four or five times, wet in cold water, lightly

press out the water, and put round the neck in a manner like a bandage; over this, put two or three thicknesses of flannel. This application should be made on going to bed. For persons of low vitality this *should not be employed*. If there is sufficient vitality to cause reaction and heat in the wet bandage, it will do good; but if it remains on the neck for any length of time cold, it is a sure indication that it should not be used. For a gargle: take a handful of dry sage leaves, two table-spoonfuls of salt, four table-spoonfuls of vinegar, and one tea-spoonful of cayenne pepper, pour upon these a pint of boiling water, cover up close, and after standing half an hour, strain and bottle for use.

RHEUMATISM. — Very little is positively known about this very distressing complaint, but the best known treatment consists in taking large and continued doses of lime or lemon-juice; from a wine-glass full to half a pint, according to circumstance, age, etc., being given at a time.

DRUNKENNESS. — Any person who desires to rid himself from this curse, can be greatly assisted by using the following: Take sulphate of iron, five grains, magnesia, ten grains, peppermint, or clove water, eleven drachms, spirit of nutmeg, one drachm; make into two draughts, and take twice a day, abstaining from all spirits.

LEECHES, AND HOW TO PUT THEM ON. — It is sometimes very difficult to get leeches to bite, or to bite in the proper place. This difficulty can be obviated by putting the number you wish to apply at a given point, into a wine-glass previously filled with water; having done this, proceed to wash the part

clean upon which you wish to apply them, and, having dried it with a towel, cover the wine-glass with a piece of paper of sufficient size and strength for the purpose, and turn the glass upside down over the spot upon which you wish them to fix; pull out the paper carefully, and the leeches will almost immediately take hold. It will, of course, be necessary for you to hold the glass tightly to the spot, and to manage the thing with some little dexterity. When they have well taken hold, place a towel or cloth around the glass to receive the water, and then remove it. For any particular locality where the place is too small to apply the glass as above, a small narrow phial filled with water will answer every purpose; but in this case the leech must be put into the phial tail first, that's all.

AIR.—Pure air is tasteless, and free from all smell, but we easily know it, as it conveys to us its freshness and its exhilarating sensations, making us feel, as we take in the delicious draught, that it is *Nature's* own sweet medicine, the luxurious healing cup which she gives. Every one should see to it that the air they breathe is of the above character—pure and health-giving. To this end purify your cellars, look well to sink drains, cesspools, and privies, give free access to sun and air in all your dwellings, let light penetrate every dark corner, and the free, pure air of heaven have full and free access to every room in the house.

EXERCISE, by energizing all our internal organs, and giving impetus, and, consequently, increased warmth to the blood, is an indispensable means of not only counteracting the bad effects of cold, but of transforming its properties into the most tonic and vitalizing

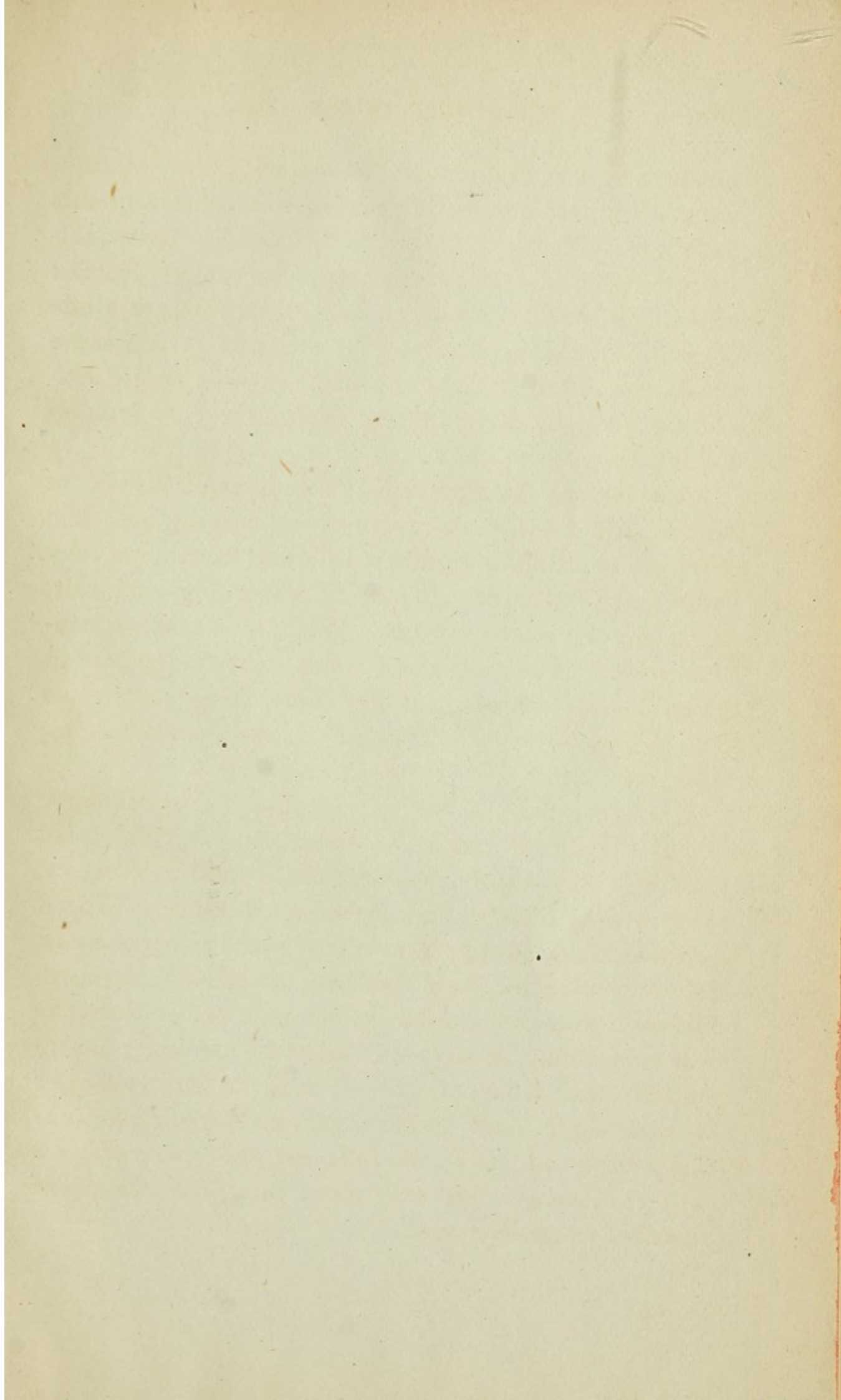
means which can be adopted for the development of the energies and the support of nature. But the world seldom attaches much value to things which are plain and easily understood. The dervish in the Eastern allegory, well aware of this weakness, knew that it would be in vain to recommend the sultan, for the cure of his disease, simply to take exercise. He knew that mankind in general required to be cheated, gulled, cajoled, even into doing that which is to benefit themselves. He did not, therefore, tell the sultan, who consulted him, to take exercise, but he said to him, "Here is a ball, which I have stuffed with certain rare, costly, and precious medicinal herbs. And here is a bat, the handle of which I have also stuffed with similar herbs. Your highness must take this bat, and with it beat about this ball until you perspire very freely. You must do this every day.' His highness did so, and in a short time the exercise of playing at bat and ball with the dervish cured his malady. Exercise gives health, vigor, and cheerfulness, sound sleep, and a keen appetite. If you would preserve your health, exercise in proportion to your strength. It is often the only available means not only of preserving it, but also of restoring it when lost.

* DIET. — As in health all the functions of life perform their duties regularly and healthfully, there is no necessity for check or regimen beyond that of *moderation*. *Too great varieties at one meal* must, however, in time cause difficulty. If peppered soups, exciting meats, inflaming sauces, acids and sodas, astringent liquids, fermented drinks, vegetable gases, dried fruits, with their indigestible oils, with *alcoholic* wines, etc., are taken into the stomach at a single

meal, as is too frequently the case with the wealthy, we must expect indigestion and various other ailments to follow. The food should be of the very best quality attainable, the variety at *different meals*, instead of a single meal. Not more than three different kinds of food should ever enter the stomach at the same meal, nor should the diet be confined to a single article, nor even to two or three, when it can be avoided for any length of time.

CRAVING IN SICKNESS. — It not unfrequently occurs that a patient will have a very strong craving for some *particular* thing, altogether different from what they would take in health. It may be something acid, salt, or sweet, or something else. When this craving continues for a day or so, and for the same thing, it is in general best to procure it for them, as in most cases it is the language of nature in that direction indicating its requirement.

A SUGGESTION. — In the preceding pages we have briefly presented a series of "First Helps" which we trust will be found of practical utility, and a source of relief, and of blessing in numberless instances. There is, however, one thing more that almost every one can do, to provide for their families, in cases of casualty. The provision must, however, be made before the sickness or accident occurs — and that is, for *every one to see that they have a moderate sum, at least, insured in some safe and well-managed Life Insurance Company, and they will then not only have made a good investment, but will have provided for their families in case of need.*



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Assistant
Medicine
Frist

