Dr. Joseph Pearson
with kind regards of A. P. Stanley

PLAIN DIRECTIONS

FOR

ACCIDENTS, EMERGENCIES,

AND POISONS.

ENLARGED EDITION.

KEEP THIS WHERE YOU CAN READILY FIND IT.

BY A
FELLOW OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA;
AND
PHYSICIAN TO SEVERAL OF THE CHARITABLE INSTITUTIONS OF THE SAME CITY.

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INTRODUCTORY.

THE object of this little book, as it is hoped every page will show, is to give a few plain directions as to what should be done in cases of the commoner accidents, emergencies, and poisons, until the arrival of skilled assistance.

It is written by a physician for gratuitous distribution, and the entire expense of preparing the cuts and publication has been borne by a kind friend. Both of them will feel amply rewarded for the trouble taken in carrying out this intention, by knowing that what is here written has in any way tended to prevent unnecessary suffering, or has in a degree contributed to save the life and activity of some useful member of the community.

A. P. T.

HOWARD HOSPITAL AND INFIRMARY FOR INCURABLES,
1518 and 1520 Lombard Street, Philadelphia.
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ACCIDENTS—EMERGENCIES—POISONS.

SCARCELY a month passes by, to many persons, without meeting somewhere an accident or an emergency in which a little reliable information is not of the greatest service. One of the difficulties usually to be contended against in such cases is, loss on the part of the bystanders to know just what should be done. It will be found, as a rule, that the simplest things, usually the most useful, are neglected, while there is a disposition to rely upon cumbrous appliances, often of disadvantage, and sometimes positively hurtful.

The object of the writer of this pamphlet is to present in a compressed form, for easy recollection and ready reference, a few suggestions as to what should be done in certain cases of emergency, until the arrival of skilled professional assistance. It is not saying too much, perhaps, that what is to be done to give relief or save life, in the greater number of cases, must be done by some one else *before* the aid of a physician can be procured. It has been truly said, "for want of timely care, millions have died of medicable wounds."

As far as possible, the use of technical terms will be omitted, although where necessary they will be used, with a brief definition inclosed in brackets ; but the writer would respectfully suggest, that, whenever possible, the scientific terms should be remembered and used, instead of the popular expressions for the same thing. A scientific term, the world over, means but one thing ; while a popular expression, in one place, means one thing, and in another, two or three things ; and, possibly, nothing at all.

ACCIDENTS IN GENERAL.

An accident anywhere, if there are people about, assembles a crowd around the victim. The first thing to be done is to disperse it ; or, at least, get the people to keep *away* from the injured person. A space of at *least* ten feet on every side should be kept *wholly free* from every body except the *one or two* in charge of the operations for relief. If others are needed for a moment, to assist in some special duty, as lifting, removing of dress, etc., they can be specially selected from the crowd ; and, having been of service, can immediately return where they came from. In several instances, the writer has seen a person just removed from water, or gas, so closely surrounded by a dense mass of "relatives" and "friends," that it was impossible for the physician to freely use his arms. The *kindest* thing a bystander can do, is to *insist* upon a free space as large as suggested, and select from the crowd persons to hold themselves in readiness to start for whatever the physician or the individual in charge of the case may require. To show how little real interest the inside layer of the crowd usually takes in the restoration of the patient, it will often be found that it is almost impossible to get one of them to run an errand in the interest of the sufferer.

If the person has been thrown from a carriage, injured by a fall from a height, blow or other cause ; while there may be no fracture, or other *external* injury evident, the nervous system has received what is called a "shock." As is commonly said, the person is "faint."

A person suffering with such symptoms should, if possible, be placed flat on the back, with the head, neck, and shoulders *slightly* raised. The limbs, at the same time, should be straightened out, if practicable ; so that the heart, already depressed in action, may act at as little disadvantage as possible. The cravat, collar, and every thing else calculated to in any way impede the circulation toward the head, or the movements of the chest, should be loosened or removed. If the injury is slight, reaction will soon

come on after giving the person a sip of cold water; brandy and water (tea-spoonful in a table-spoonful of cold water every couple of minutes); or Aromatic Spirits of Ammonia (twenty drops in a table-spoonful of cold water) every couple of minutes. Gentle frictions to the extremities, a few drops of cologne-water on a handkerchief to the nostrils; if the weather is hot, the use of a palm-leaf fan; hot flannels to the limbs and epigastrium (pit of the stomach); are all likewise useful in assisting reaction.

By this time, should a surgeon have arrived, he will examine and decide upon the special nature of the injury, and inaugurate measures of special relief. Should he not have appeared, and it is thought best to remove the patient to the hospital, or his home, a *stretcher* should be secured, or a substitute, in the shape of a settee or shutter, provided. The injured person should then be gently *slipped* on, seeing that the body is supported as much as possible along its length, something thrown over or held over the face, to prevent, as much as practicable, the uncomfortable feeling of being stared at in passing along. Four persons of uniform gait should then gently lift the stretcher and slowly carry the person to his destination. In most cities, appliances for carrying injured persons are required to be kept at the station-houses, and can be obtained, on application, as well as the services of a good policeman. The authority of the latter is almost invaluable in keeping away the crowd referred to, and in securing useful attention in conveying the person through the streets. If the person is to be taken to the hospital, a dispatch from a police-station will secure from most of them, free of charge, an *ambulance*, with competent persons to take charge of the injured individual.

Directions for fractures and dislocations are given elsewhere, p. 34.

ASPHYXIA.

This commonly-used word is from the Greek, signifying an *absence of pulse*. It states a fact, but not the cause. Like many other old words, the original meaning has been set aside, and it

now means *suspended animation*, produced by the non-conversion of the venous blood in the lungs into arterial. The supply of good air to the lungs being cut off by some cause, the necessary *purification* at that point no longer takes place, and death of the entire body ensues from the absence of arterial blood, or the presence of venous blood; some physiologists regarding it from one cause, others from the other. In other words, as is often said, the person dies because the blood is not purified.

It will be seen there can be several varieties of Asphyxia, as, (1) Asphyxia from submersion, as in the ordinary drowning in water or other fluids; (2) Asphyxia from mechanical causes, as by strangulation, or hanging, and by foreign bodies in the windpipe or its approaches; (3) Asphyxia by inhalation of gases, known as suffocation; (4) Asphyxia from torpor of the medulla oblongata (an important portion of the brain, at the junction of the spinal cord and what is called the brain), produced by the introduction into the blood of certain poisons.

Drowning.

As said above, this is *Asphyxia* from submersion in water or other fluids. This accident is of such frequent occurrence, and what is to be done must be done so quickly, that it is the duty of every member of the community to understand the measures of relief in such cases.*

The body should be recovered as soon as possible from the water; the face turned downward for a moment, with the forefinger of a bystander slightly curved and thrust backward, to depress the tongue, to favor the escape of a small quantity of water or

*A series of brief and easily understood "Directions for Restoring the Apparently Drowned," have been prepared and printed in large type, on cards suitable for hanging. Responsible individuals willing to personally undertake the placing of them at ferry-slips, bridge-approaches, boat-houses, and such places, will be gratuitously furnished with cards, on application to the Howard Hospital and Infirmary for Incurables, 15, 18 and 20 Lombard street, Philadelphia.

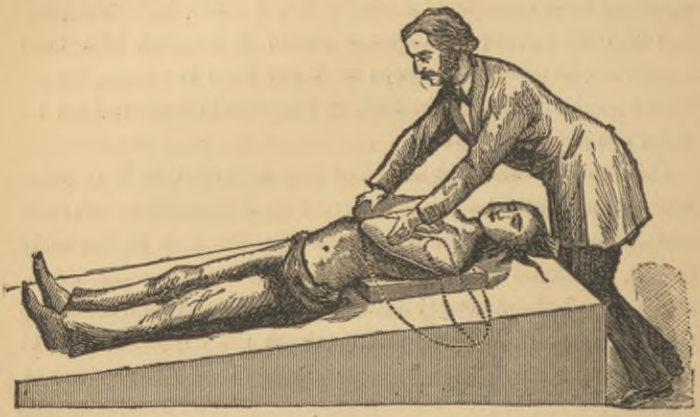
mucus, or other substances, often collected at the base of the tongue, over the entrance to the trachea (windpipe), which tends to obstruct the entrance of air to the lungs. The barbarous practice of rolling the person over a barrel, or hanging him head downward, to permit the escape of water from the lungs, has almost ceased, in view of the fact, now generally known, that no water can get into the lungs.

This can be done as the body is being conveyed to the nearest house, a messenger having been previously dispatched to make the arrangements involved in the following: As soon as the body arrives, it should be stripped of the clothing, rapidly dried, placed on a bed, previously warmed, the head, neck, and shoulders raised a very little, if any ; frictions with the dry hands used to the extremities, and heated flannels kept applied to the rest of the body.

For an instant imagine the condition of affairs. Each atom of the body requires arterial blood, which is blood purified in the lungs by exposure to the air breathed. This *purification* has been *suspended*, and to that extent the *life* of the body is suspended. Movements of the chest, by which air is inhaled, are at a standstill, and can not, of themselves, be resumed. If *artificial breathing* can be carried out for some time, it will be seen that these impurities may be so far removed that *natural* respiration can take place. Two methods are usually employed for the purpose—the first known as "Silvester's Ready Method."

This consists, after the above suggestions have been carried out, in pulling the tongue forward which better favors the passage of air along the base of the tongue into the trachea (windpipe), and then drawing the arms away from the sides of the body and upward, so as to meet over the head, by means of which the ribs are raised (expansion of the chest) by the muscles (pectoral) running from them to the arms near the shoulder. A vacuum is thus created in the lungs, the air rushes in, and the blood then is purified by the passage of the impure gases in the blood-vessels to the

air, and by the giving up by the air of a portion of its oxygen to the blood. The arms are now brought down to the sides, and the



elbows made to almost meet over what is called the "pit of the stomach." This produces contraction of the walls of the chest, and expulsion of the impure air from the lungs.

These two movements constitute an act of respiration, and should be persisted in, without interruption, at the rate of about sixteen to the minute. In other words, each complete movement should occupy about four seconds, which is about the natural rate of respiration in health.

The second "Ready Method," as it is called, is that of Marshall Hall.

The person whose breathing is to be restored is placed flat on the face, gentle pressure is then made on the back, the pressure removed, the body turned on its side, or a little beyond that. The body is then turned again on the face, gentle pressure again used to the back, then turned on the side. This should be done about sixteen times in a minute.

Both of these methods have the same *object* in view; either may be exclusively used, or one may be alternated with the other. Most physicians express a preference for the first described

("Ready Method of Silvester.") Both of these procedures might be practiced, in advance, by the reader, because such practice might be more easily remembered than a concise rule. The application of the tourniquet, or pressure of the fingers, described elsewhere, to a blood-vessel, might also be practiced at the same time. There are few people, in an ordinary life, who will not find knowledge of this kind, at their fingers' end, of the greatest use.

In speaking of the restoration of persons drowned, it is often said that he was a good swimmer, and must have been attacked with "cramp." This is a spasmodic contraction of the muscles beyond the control of the individual, and occurs after exhaustion of the muscles from over-exertion. Persons suffering from debility, especially the debility peculiarly affecting the nervous system, should never be induced to go beyond depth in the water, or out of reach of immediate assistance. There is no warning in advance of the seizure, and the person sinks at once. Many lives are lost each season, in shallow as well as in deep water, from these seizures, which could have been avoided had the bather, perhaps just recovering from an attack of sickness, or even of indisposition, not neglected the precautions stated.

Recovery from Asphyxia from drowning can scarcely be expected to take place after an immersion of five or six minutes, although there are well-authenticated cases where restoration has taken place after an immersion of as much as twenty minutes. The effort ought to be made, and persisted in until the arrival of a physician, or for at least a couple of hours. As soon as returning *vitality* permits, a few drops of brandy, in a little water, may be given; and, as the strength of the person is usually completely exhausted, from muscular efforts of the most violent and continued character, to save himself from drowning, some beef-tea, or other easily-digested nourishment, should be given.

Hanging.

Here death results from Asphyxia induced by pressure applied to the trachea (windpipe) from the outside, as in strangling, or

hanging. The body, if hanging, should be at once cut down, taking care not to let it fall, so as to complicate the trouble. If the knot can be untied readily, it should be done; if not, cut the ligature. Remove, by the finger, as in directions in drowning, any accumulation of mucus at the base of the tongue, place the body on [the back, just as directed for a person taken from the water. If the body is still *warm*, after removal of the clothing, the face, head, neck, and chest should be dashed freely with cold water. To do this successfully, a person should stand off six feet, or even more, with a bowl of cold water, and then throw its contents, with as much force as possible, against the person. After using for a suitable length of time, the water should then be rapidly wiped off with a towel. There is little difference in essential features, after removal of the ligature from the neck, in the condition of a person who has been hanged or who has been drowned. In both it is Asphyxia : in one case, the air was kept from the lungs by a ligature; in the other, by a liquid. Artificial respiration in both of them must be used, assisted for the same reason, and in the same manner, by like auxiliaries.

There is an impression, quite prevalent among the ignorant, that a penalty is incurred at law for cutting down the body of a person found hanging, unless the sanction of the coroner is obtained. No such delay is necessary nor even justifiable; and an effort should at once be made to restore suspended animation by the methods given.

Suffocation.

There are several gases, which, when inhaled, are followed by symptoms of Asphyxia. The little valve (epiglottis) over the entrance of the trachea ("windpipe"), is so extremely sensitive that it will not even permit a drop of water to pass without a spasmodic closure of the opening, followed by coughing. It is not only sensitive to solids and liquids, but also to the presence of most gases. At one time it was thought that all gases were taken past it into the lungs, and absorbed from thence into the blood. The

opinion now seems to prevail that most of them irritate the valve spoken of at the entrance of the trachea (windpipe), and closure of the entrance follows. The breathing is thus interrupted much as it is in drowning, where the liquid cuts off the passage of air to the lungs; or as in hanging, where the ligature prevents the entrance of air. In such cases, death results from Asphyxia.

Carbonic Acid Gas.

Asphyxia, by inhalation of gas, takes place as soon as the person comes within the influence of this compound, and takes it in with the breath. A sudden sense of suffocation is felt, with dizziness of the brain and inability to stand. If a person is standing at the time the air is taken into the lungs, and falls over, he is in a position, while down, to inhale more of the carbonic acid gas, for, being heavier than the air, much more of it is to be experienced at the bottom of the well, or cavern, than five feet higher up.

This gas, sometimes known under the name of "Choke Damp," is produced in the ordinary process of fermentation, in burning and slaking lime; and it is also found in mines, particularly coal-mines; and in wells, cellars, or caves which have been long closed up. It is considerably heavier than the atmosphere, and is consequently found lying on the floor of the cavity where confined.

No well, vat, old cellar, or cavern of any kind, should ever be entered without first lowering down into the deepest point a lighted candle. If the flame is extinguished, or burns dimly, indicating the presence of this gas, no one, under any circumstances, should be permitted to enter without removing this foul air. It lies at the bottom, because too heavy to ascend. It is not so heavy, however, that a strong *current* of common air will not dislodge it. Buckets of water dashed down into the well, or masses of lighted shavings or blazing paper, give enough *movement* to the carbonic acid gas to dislodge it from its resting-place. After *testing* the success of the effort by again introducing the lighted

candle, it can soon be known whether a person may enter with impunity. Freshly-slaked lime also rapidly absorbs it.

Often there may be no such gas shown in the *cavity*, but the efforts of the workmen will *dislodge* it from an adjacent space into the one in which he is breathing. This *possibility* should never be lost sight of.

When a person appears overcome by this Carbonic Acid gas, he is, of course, wholly unable to help himself, and he must at once be removed by another. Sometimes a grapnel-hook can be used with advantage, but often the better way is to rapidly lower some bold, clear-headed person, with a rope securely fastened around his middle, who can seize and bring to the surface the unfortunate individual. No time should be *lost* in descending or arising, as the person lowered depends upon doing every thing during the interval he can hold his breath; for, of course, should *he* inhale the gas, his position, in this respect, would be but little better than the man he attempts to succor. A large sack is sometimes thrown over the head and shoulders of the person who descends. It contains enough air to serve for several inhalations, while the texture of the material prevents, to a hurtful degree, the *admission* of the deleterious gas.

The person suffering from Asphyxia from the gas, immediately after being brought out, should be placed on his back, the neck and throat bared, and any other obstacles to the breathing quickly removed. His body should then be quickly stripped, and if he have not fallen into water on being overpowered by the gas, his head, neck, and shoulders freely dashed with cold water.

Remember, this is not "sprinkling," as commonly practiced; but, as said before, a person should stand off some distance, with a bowl of cold water, and *throw* its contents, with as much *force* as possible, against the parts. Others should follow without an interval for half a minute, while one can count thirty slowly, then the dripping water wiped away by a towel. This procedure should be repeated from time to time, as apparently required. Some-

times, if a brook of water is near, the stripped person might be dipped again and again; being careful, of course, not to dip in his face. Artificial respiration should be used with as little intermission as possible.

Should the person have fallen in water and become *chilled*, the use of the cold water, in this manner, had better be avoided, as the evaporation of the moisture absorbs more heat than can be manufactured by the exhausted and overpowered system. In such a case, the body of the person should be put into a warmed bed, with hot applications, and Artificial Respiration (p. 10) at once established, as in the Asphyxia from drowning and hanging.

While artificial respiration is being used, friction applied to the limbs should be kept up.

Burning Charcoal.

Certain gases (Carbonic Oxide Gas) of a very poisonous character, are given off during the burning of charcoal, and when inhaled for a sufficient length of time, rapidly prove fatal. The person quickly drops insensible, and dies of Asphyxia in many respects like the person who has succumbed to the Carbonic Acid Gas, just described. The treatment there advised should at once be carried out.

Anthracite and Bituminous Coal.

These also, when burned in a close room, as a kitchen shut up for the night with an open stove of these burning coals, give off, to a degree, the peculiar poisonous gas alluded to as coming from burning charcoal; Carbonic Oxide Gas; as well as *other* noxious gases. Persons sleeping in such a room, under the circumstances, unless awakened as the air becomes fouled, will be found senseless or dead, soon after. The treatment should be as described in the preceding pages, in Asphyxia from inhaling Carbonic Acid Gas.

Common Burning Gas.

Persons retiring at night often leave the gas "turned down," and the flame becomes extinguished. Enough gas often escapes

to give trouble to the sleeper unless the room is well ventilated. Persons have been known to "blow it out" as they would a candle, and suffocation more of less complete has followed.

Treat as in the Asphyxia from other gases just described.

Foreign Bodies in the Throat.

A piece of food or some other body often gets back into the mouth, and can not be swallowed. In such a case, the finger will often be able to thrust it downward, should that be thought best. A *hair-pin*, straightened and bent at the extremity, will often drag it out. If the body is firm in character, a pair of scissors, separated at the rivet, and one blade held by the point, will furnish a *loop*, which often can be made to extract it.

Foul Air in Drains and Privies.

This is usually Sulphureted Hydrogen, and arises from the decomposition of the residual matters usually found there. Great caution, on this account, should always be observed on opening and entering such places, or places in possible *communication* with them, especially if they have been long closed. A small quantity of *pure* Sulphureted Hydrogen, if inhaled, is usually fatal; but, in the cases referred to, the gas usually exists *diluted* with common air. The breathing becomes difficult, the person loses his strength, falls, becomes insensible and cold, lips and face blue, and the mouth covered with a bloody mucous secretion.

The person should be removed as quickly as possible beyond the influence of the foul air, and the treatment under the head of "Carbonic Acid Gas" pursued.

The *possibility* of such a disaster should always be borne in mind in opening long-closed drains or privy-vaults, and the danger lessened by taking a few pounds of chloride of lime (bleaching salt) dissolving it in a pailful of water, and dashing it into the cavity. In the absence of this, lime and water, in the form of the common "whitewash," may be employed. This gas readily

combines with lime; to that extent freeing the air of the poisonous compound.

SUNSTROKE.

Ordinary exhaustion, from overwork in a heated atmosphere, is about the only disorder likely to be confounded with sunstroke. In directions for popular use, like these, the distinction between the two will not be attempted, as there is no essential difference in the treatment.

Contrary to what is generally supposed, exposure of the head to the *direct* rays of the *sun* is not necessary, as statistics show it occurs in the shade, under shelter, and even at night; sometimes, even in persons who have not been exposed to the sun for days before. Intense *heat* always appears necessary to produce it; but the heat need not be *solar*, but may be artificial. Workmen in sugar refineries and laundries have been attacked.

Sunstroke appears to be decidedly favored by intemperance; want of acclimatization; and the debility which has been brought on by fatigue in a heated atmosphere, also favors it. Occupants of badly-ventilated sleeping apartments appear to be oftener attacked than those who sleep in purer air.

Symptoms.—It is generally thought by the non-professional, that the symptoms of sunstroke come on without any *warning* whatever. Most cases, however, are preceded by pain in the head; wandering of the thoughts, or an inability to think at all; disturbed vision; irritability of temper; sense of pain or weight at the pit of the stomach; inability to breathe with the usual ease and satisfaction. These symptoms become more marked until insensibility is reached, sometimes preceded by delirium.

The skin is very hot, usually dry, but when not dry, covered with profuse perspiration. The face is dusky, or, as the saying is, "blue;" breathing, rapid and short, or slow and sighing. The action of the heart, indicated to the hand placed over it, is weak, rapid, and tremulous, often compared to the "fluttering of a bird." In many instances, from what is popularly termed the

commencement of the attack until it ends in death, the patient does not move a limb, nor even an eyelid.

The breathing gradually fails; the blood, therefore, is not purified in the lungs, as is indicated by the livid, purplish appearance of the surface. We are led by it to conclude that death takes place by Asphyxia, as described under the heads, "Drowning," "Suffocation," etc., pp. 10-12.

Causes.—While we know certain things *favor* the disorder; that a *high* temperature is necessary to produce it; and advise certain measures of precaution and relief, found by experience useful in such cases; but little is known of the *nature* of the malady. It would seem that the great heat of the body induces some change in the character of the blood, disqualifying it for the usual purposes of blood. From this peculiar condition of the blood, the portions of the brain or nervous system controlling the action of the muscles of the chest and heart lose their ability to superintend properly the movements of breathing and circulation, and, as said before, the person dies from Asphyxia.

Treatment.—The person attacked should at once be carried to a cool, airy spot, in the shadow of a wall, or to a large room in a house with a bare floor; or, what is often better, if there is no sun, he should be placed in a *back yard*, on the pavement. Unnecessary bystanders must be kept at a *distance*, as the person in this, as in every other accident, needs all the pure air about.

The clothing should be at once and gently removed, and the patient placed on his back, with the head raised a couple of inches by a folded garment. Then the entire body, particularly the head and chest, dashed with cold water, in profusion. While preparations are being made for this, a messenger should be dispatched for a good supply of ice. A large fragment should be placed in a towel, and struck a few times against the side of the house to rapidly reduce it to small pieces. These pieces, mixed by the hand into a bucket of water, will rapidly supply ice-water. Two buckets can be used, each half full of the small ice, and as

soon as the water of one is used for dashing against the patient, another will be ready for the same purpose. The ice-water must not be *sprinkled* over the person, but *dashed* against him in large bowlfuls, particularly against the head and chest. While one person makes the ice-water, and another uses it, a third should, in the same manner, with a towel, break some ice in fragments not larger than almonds. A double handful, at least, of these bits should be placed in a thin, coarse towel, the ends gathered up and fastened with a string, as you would a pudding. Then holding to the tied portion of the collection of ice, the entire surface of the body should be rapidly *rubbed*. Indeed, two other persons might, each at the same time, be engaged at different portions of the body—not forgetting the head.

These measures are to reduce the heat of the body from the high temperature, evident even to the hand of a bystander, to something like a natural temperature. When the *decline* in the heat is noticed, the cold applications should be abandoned, the patient carefully removed to a dry spot, and the entire surface of the body dried off with towels. Should a tendency to a return of the *high* temperature be seen, as sometimes happens, even after consciousness is restored, it must be met by a renewal of the cold applications. The rise again in temperature need not seem surprising, when the amount of highly heated blood within the body, not yet exposed to the cold applications, is taken into consideration.

Artificial respiration, until the natural returns, must be resorted to as soon as the heated condition of the body is overcome. The dashing of cold water over the chest and face is a useful means of encouraging a return of the suspended breathing, and is practiced in asphyxia from other causes (p. 14). The Ready Methods of p. 11, however, had better be relied on for this purpose.

Medicines in this malady, it will be seen, can be of little value. A stimulant, however, may be useful. Brandy, or any other form of alcohol, should be carefully avoided. The best stimulant in

all such cases, if it can be obtained, is the Aromatic Spirit of Ammonia;* fifteen or twenty drops in a table-spoonful of water, might be given every few minutes, until taken three or four times.

Prevention.—During the heated term, as it is called, *all* use whatever of malt, fermented, or distilled drinks should be abstained from. Not only do they *favor*, in a general way, a condition of the system in many respects similar to that which leads to sunstroke, but they deaden sensibility at the very time it ought to be on the alert; and the person is less able to detect slight changes in his feelings, which otherwise might have served as useful warnings in his behalf. The use of such substances, under the circumstances, seems as unwise as it would be for a person, in a time of great danger, to prepare for watchfulness by taking a dose of laudanum; or for a worker with his hands among hot metal to apply something to them by which sensibility would be deadened or destroyed. By night, perhaps, he would have no fingers left.

Every thing in any way calculated to impair the *strength* should be avoided. Sleep is a most wonderful restorer of strength, and the want of it is often caused by a badly-assorted late meal of the evening before. *Defective ventilation* leads to a condition of affairs favorable to the malady under consideration. Every night a bath should be taken; but as this is not always possible in every house, the entire body should be washed off each night before lying down. Laboring men who work in the sun have no excuse for neglecting this, for water costs nothing, and three minutes of time is all that is required.

* The Aromatic Spirit of Ammonia, and Brandy, quite independent of their intrinsic worth, are the two stimulants usually referred to, because most likely of all others to be found in an emergency. For the same reason, all through this treatise, but few simple appliances are directed, and these easily secured. It is an application of the principle of, one good thing always to be had; rather than a dozen better, which can not.

Drinking large quantities of *cold water*, merely because it is cold, should be avoided immediately before, during, and after meals. The debility resulting from the heat weakens the digestive powers, and water unnecessarily used to excess at the times named tends still further to retard the digestion of the food, by further weakening the solvent action of the secretions of the stomach.

In other words, if there is a time above all others, the year around, when every precaution for the preservation of health is required, it is during the hot months of summer.

Loosely fitting light garments should be worn, if possible. Particular attention should be given the head. It should be *protected* from the heat of the sun, and at the same time the covering worn should favor the circulation of a free *current of air* over the scalp. A straw hat of loose texture, with a lining to the crown which could be kept constantly wet, ought to be worn ; and if it has brim enough to protect the neck, and even the shoulders, the wearer is just that much more fortunate than other people.

While attention should be paid to these things in hot weather, it is *particularly* necessary, should any of the named symptoms be observed on any special day, that the greatest care should be taken, if work in the sun is absolutely necessary, that the symptoms do not extend into an attack of sunstroke. Discontinuance of work, if possible, until the symptoms disappear, in such a case, would seem to be the *best* course to be pursued.

It is said that persons who have once suffered from sunstroke, for a long time after are unable to bear exposure to the heat, without a recurrence of the symptoms of the malady.

ACCIDENTS FROM LIGHTNING.

A person struck by lightning is usually rendered more or less *unconscious* by it, which lasts for a longer or shorter time. Cases are on record where a person struck exhibited no sign of life for an hour, and then recovered. Temporary paralysis of a portion of

the body may remain for a while, as well as disturbance of some special function, as the sight, smell, taste, or hearing.

The *burns* caused by lightning should receive the same attention as a burn from any other cause. Sometimes an injury observed is not directly due to the electricity, but from a fragment detached by that agent from a neighboring substance.

When death takes place, it is from shock, as it is called, to the brain and nervous system. When the person exhibits little or no signs of life, the clothing should be rapidly and immediately removed, the body exposed to a dashing of cold water; then dried, placed in bed, and warmth applied, particularly to the "pit of the stomach," by means of bottles filled with hot water, or the tin vessel kept in some households for such application. It is somewhat concave on one surface, filled with hot water, and, if it can be had, is well adapted to the purpose.

Artificial Respiration should be kept up until the parts of the brain and nervous system in charge of this duty shall have recovered enough to attend to it. As said before, recoveries after an hour of supposed death are on record.

Some stimulant, as the Aromatic Spirit of Ammonia, may be used. Twenty drops in a table-spoonful of water, every few minutes, may be given; or a tea-spoonful of Brandy instead.

SHOCK.

Mild forms of Shock, or Collapse, as it is sometimes called, are often, by the non-professional, confounded with Fainting (Syncope). As far as the symptoms extend, the symptoms of an ordinary attack of Fainting are analogous to those of Shock. The symptoms between the two vary rather in degree and duration than in kind.

Life may be destroyed by certain agencies, as a blow upon the "pit of the stomach," or a sudden and powerful emotion of the mind, and no visible trace be left in any part of the body. It is called "Death from Shock." This is the *extreme* result of Shock.

Usually the patient lies in a state of utter prostration. There is pallor of the whole surface; the lips are bloodless and pale. The eyes have lost their lustre, and the eyeball is usually partially covered by the drooping upper lid. The nostrils are usually dilated. The skin is covered with a cold, clammy moisture, often gathered in beads of sweat upon the forehead. The temperature is cold, and perhaps the person shivers. The weakness of the muscles is most marked; as the phrase is, "the patient is *prostrated.*" The mind is bewildered, often insensibility occurs, unless aroused; and, in many cases, nausea and vomiting. In *extreme* cases, the nausea and vomiting are not so apt to occur.

Sudden and severe injuries, particularly if *extensive* in character, and involving a large amount of texture, cause Shock. Burns—especially of children—extending over a large *extent of surface*, even if not extending to a great *depth*, are often followed by Shock, and this complication requires often the *earliest* attention.

Certain poisons, as Tobacco, and Tartar Emetic, act in this manner, depressing the system. So does a current of electricity, as is seen in the effects of lightning.

Loss of Blood produces or aggravates Shock. Hence a *slight* injury, with much *loss of blood*, may be attended with more Shock, than a comparatively more severe injury *without* the loss of blood. Debility favors the influence of Shock. A weak system is more easily impressed by it, and, as should be expected, *reaction* from its effects is longer in taking place.

As the vital powers of life decline, from engrafted or natural causes, there is less power available as a reserve to meet contingencies. In youth there is an available fund of this kind; in the adult the resources of the system may be equal to the task of *ordinary* maintenance, but in the aged, as said before, there is much less ability to deal with *sudden* losses of strength. The *aged*, therefore, are slow to *rally* from the effects of Shock. They have more power of *resistance* than the young. The shock does not *readily* make an impression, as it does in the *young*, but when it

does, the impression *endures*. In the young the impression is more easily *made*, but sooner *subsides*.

Treatment of Shock

Consists in first placing the patient as flat on his back as possible, with the head *raised not over an inch*. This is an important point in cases of ordinary Fainting, and whenever the vital powers are depressed. Stimulants are required. The aromatic character of Brandy enables it to be retained by the stomach when Whisky and other forms of Alcohol are rejected. A tea-spoonful in a table-spoonful of water every minute, until six or eight have been taken, is the best way to give it. If the temperature of the body is *raised* by it, and there seems a revival of the action of the heart, *enough* Brandy has been given. Twenty drops of the Aromatic Spirit of Ammonia in a tea-spoonful of water may be given every couple of minutes, until four or five doses have been taken. The applications of heat to the extremities and "pit of the stomach" are very useful. Flannels wrung out in hot water, or bottles of hot water properly wrapped up, should not be neglected. In some households, a tin can, somewhat concave on one surface, to fit the curvature at that point, and with a stopple in the upper surface for the introduction of the hot liquid, can be usefully employed for heat to the epigastrium ("pit of the stomach"). Mustard-plasters to the same place are often used, but they are so inferior to heat for the purpose, if that can be applied, and so apt to blister, thereby making it impossible to use any thing else on the surface, that some reluctance is felt in advising them. Nausea and vomiting often are seen in Shock, and can best be allayed by getting the patient to swallow whole, small chips of ice. Ice, by the way, can be easily chipped by standing the piece with the grain upright, and splitting off a thin edge with the point of a pin.

Ammonia (smelling salts), applied to the nostrils, is often use-

ful ; and cologne, on a handkerchief, is often pungent enough to be of service in the same way.

Shock from Bathing in or Drinking Cold Water.

In the hot weather, cases often occur where death or great prostration ensues from drinking ice-water, or bathing in cold water, while the body is exhausted from heat or exercise. The same thing happens to animals under similar circumstances. Cold water in hot weather, if the person is *heated*, should always be drunk in small quantities at a time. If not, although neither death nor prostration may follow, a troublesome derangement of the digestive tract ensues, often laying the foundation for other troubles.

When the body is heated, or exhausted, a bath in cold water ought never to be taken. A sponge bath will answer, until the vigor of the body has had time to be restored.

These troubles can be referred to Shock, and should be *promptly* treated as such, according to the given directions.

FAINTING.

Persons often faint without any proportionate cause. Debility of the nervous system *favors* it. While the author would not like to say that the tendency to swoon can be intentionally acquired, he is compelled to think it can be unintentionally perpetuated under many circumstances.

The treatment *usually* followed is, perhaps, the best; but people are apt to *raise* the *head* of the patient. Even in carrying her to the bed or sofa, it should be kept lower than the rest of the body. Indeed, there is no better restorative in such cases than such a relative position of the extremities. Should the person be sitting in a chair at the moment, do not remove her, but stand behind the chair, reach the hands over in front, so as to grasp the sides of the back of the chair, take a step backward to give room, and then slowly depress the back, supporting the head until the floor is reached. An assistant, by holding to the dress over

the knees, will prevent lateral slipping off from the seat of the chair. It is so rapidly and easily done, besides so effective in its operation that little else remains to be done. Usually the back of the head of the patient scarcely reaches the floor before consciousness returns.

BURNS AND SCALDS.

These common accidents, by receiving *early* and *suitable* attention, are often deprived of much of their inconvenience. Of course, the first thing is to put the fire out, and then, if the injured parts require it, the clothing should be cut away, so as to get at the entire extent of the injury with as little trouble to the patient as possible. Should any fragment of garment appear adherent to the burned surface, the *sticking* part should be left, as the violence required to remove it must necessarily *increase* the damage to the injured part.

When the clothing catches fire, throw the person down on the ground, as the flames will tend less to rise toward the mouth and nostrils. Then without a moment's delay, roll the person in the carpet or hearth-rug, so as to stifle the flames, leaving only the head out for breathing. If no carpet or rug can be had, then take off your coat and use it instead. *Keep the flame as much as possible from the face, so as to prevent the entrance of the hot air into the lungs.* This can be done by beginning at the neck and shoulders with the wrapping.

If the burn or scald involves considerable *surface*, symptoms of shock are observed, from the extreme of mere weakness to that of utter prostration. This at *once* requires prompt attention, and a few drops of Aromatic Spirit of Ammonia in water, or a little Brandy, should be given every few moments until a *return* of the strength is seen. A burn, superficial as far as *depth* is concerned, but covering a large *surface*, especially in the case of small children and aged people, is usually considered more dangerous, as far as *life* is concerned, than a burn *smaller* in extent but deeper and more complete. Never mind how slight the injury *appears*, if there is reason to suppose the heated air or steam has been *inhaled*, no time should be lost in taking the opinion of a physician as to the result of the injury to the *throat* and *lungs*.

Treatment.

If the burn or scald is *slight* in character, one of the best applications is the Water Dressing, p. 32, as there said, keeping the linens used, *constantly* wet with cold water. In a short time after the pain shall have moderated, one of the best things for use, and readily procured, is a dressing of pure hog's lard. The common lard of the stores will scarcely answer, from the impurities it contains. At the Infirmary in Lombard street, they usually direct that a half pound, or less, of the best lard should be bought, and put into a vessel of hot water, boiled a few moments, being stirred with a stick until it is thought all the salt used for preserving the lard, and the alum put in to bleach it, have been washed out. The vessel is then set aside until the floating lard hardens. It is then collected, placed in a bowl, which in turn is placed in a vessel of hot water on the stove, and kept there until the water mechanically held by the lard has been driven off. The bowl of lard is heated by surrounding water, to prevent *scorching*.

After thus prepared, the lard may be considered perfectly pure, and can be put away in suitable vessels until required for application.

It is much better than the commonly used Linseed Oil and Lime Water, as the Linseed Oil is rarely *pure*, but contains irritating substances left in the manufacture, or added for the purposes of adulteration. Wheaten Flour is often dusted over the burn; but this, with the discharges, *hardens*, and is of as little comfort as an application of small crusts of bread would be to the injured part.

Cotton wool (carded cotton, cotton batting) is often used, but the fibers become imbedded in the discharges, and then can not be detached without unnecessary pain and disturbance of the wound.

If the burn or scald, particularly the latter, is superficial in character, a simple and useful dressing is the application, by a brush, or a soft wisp of old muslin, of the White of Egg to the injury. As soon as the first layer dries, another should be used. In superficial burns and scalds, this treatment is especially grateful.

A lather of soap from the shaving-cup, applied by the brush in the same way, is often followed by immediate relief. These substances appear to protect from the action of the air the irritated nerves beneath. As before said, do not apply "cotton" to the injury, as sooner or later it increases the pain, and without having done any special good.

If a physician has been sent for, it is better not to make any domestic applications to the burned parts. Such things frequently prevent him from using those better adapted to the wants of the person, and keep him, too, from forming a correct estimate of the real extent of the injuries.

Where the effects of the burn or scald extend *deeper*, involving the subcutaneous tissue, or even the parts beneath that, as the muscle, other considerations must not be overlooked. There probably will be more shock. The portion whose vitality has been *destroyed* by the burn can not do otherwise than become detached from the uninjured parts beneath thrown off in the shape of shreds or larger masses, during the process of sloughing. After water-dressing has given a degree of relief to the part, and this is some-

times sooner secured by adding Laudanum (Tincture of Opium) to the water, a system of Poulticing* must be commenced. After being used for a short time, a mark of well-defined *separation* is seen at the junction of the burned and the unburned parts. The edge of this dead portion often falls away, like a piece of wet buckskin, showing, except at the *edges*, a union of the dead and the living parts. This process of separation continues for some time, attended with such profuse discharges that the poultices must be *changed* several times a day to preserve neatness ; but after a while the *entire* mass lies loose, attached only at the centre to a raw suppurating surface below. A short time after the whole mass becomes detached and is removed. Then at the edges and surface of the uninjured parts a process of filling up the wound by "granulation" must commence. The newly-formed substance begins first to be deposited at the edges of the wound, generally reducing the area. This process, in such a wound, the result of a burn, is much less rapid than might be supposed by the unprofessional, and is attended with much suppuration (making of pus).

Whenever the destructive process of *suppuration* goes on in the body, from whatever cause, there is *exhaustion* of the strength. This must be combated by a judiciously selected diet ; and sometimes by appropriately selected tonics. Often, the surface undergoing repair is benefited by local applications ; but these can only be appropriately selected by a physician, so nothing need be said about them here.

As remarked above, in burns beyond a certain degree of destruction, the process is one of repair rather than restoration. Instead of the *destroyed* portion being *replaced*, the reparative material is of *such* a character that it undergoes contraction ; and great deformity may result from its dragging effects upon adjacent healthy parts. These effects may often be *mitigated* in ex-

* "Recipes for Sick People." Sometimes bound with this.

tent, but can not be wholly *prevented*. Thus, if the arm, at the elbow, is burned or scalded, so that a scar results, the contraction of this tissue will often draw up the forearm to a right angle, from which it can not be straightened. A burn or scald at the front of the neck is often followed by a dense white scar, which, contracting, draws the chin down toward the chest, and the lower lip down toward the chin, ending in the greatest deformity. The medical attendant is sometimes unjustly censured for these things.

From what has been said, it must be observed that Burns and Scalds practically differ but little from each other. Scalds are usually more confined to the *outer* cuticle, unless the substance containing the heat is viscid in character, as oil, pitch, etc., and does not rapidly run off the part with which it came in contact. As far as popular assistance is concerned, the two may be regarded as presenting no essential difference.

Cloths wet with cold water may be kept constantly applied, and if the destruction of the skin is not too complete, nothing more will be required.

Burns by Lime, Caustic Potash, and other Alkalies.

As a rule, these are troublesome, since there is not only removal of the cuticle, superficial skin, but destruction of the soft parts *below*. Lime is a powerful *alkali*, and rapidly destroys the parts with which it comes in contact. It is useless to attempt to *pick* it off, for the fingers remove no more than it gets hold of, so an application should at once be made of something to *unite* with the Alkali, to form a comparatively *harmless* preparation. Vinegar diluted with water; the acid in Lemon-juice, or any other dilute Acid, will answer. These things do not *undo* what has been *done*, they only prevent *further* mischief. The portion of the tissue *already* destroyed, must *separate* as if it had been destroyed by *heat* in the case of a Burn or Scald; must be aided by the same means; must heal in the same manner, and must be followed, of course, by the same ultimate contraction of the reparative material. And

what has been said about the Alkali known as Lime, may be said about the *other* Alkalies; Potash, Soda, Ammonia, etc.

Burns by Acids—Sulphuric Acid (Oil of Vitriol), Nitric Acid (Aqua Fortis), etc.

As *Alkalies* destroy the living tissues they come in contact with; so will *Acids* of sufficient concentration. In such cases, applications of water will dilute them beyond their capacity to injure. Alkalies applied neutralize acids into *harmless* preparations. Common Earth, gathered almost anywhere, applied in handfuls, contains alkali enough of one kind or another to entitle it to the consideration of being one of the best (and at the same time most easily secured) applications in cases of Burns by Acids.

CONTUSIONS.

These common injuries are termed "Bruises" by some people, and are the only other injuries besides wounds and fractures, produced by blows or pressure. The injury may be the *simple* form; only a slight shaking or jarring of the texture, with no *visible* change, except what results from the rupture of the blood-vessels. This is the most frequent. In the more *severe* but less frequent form, the Contusion means broken blood-vessels, muscles, and tissues between and around them; the parts are thoroughly crushed, sometimes to a pulp; damaged beyond recovery, and ready to perish in the gangrene resulting as the extreme form of such an injury.

The *quantity* of blood escaping from the ruptured vessels depends, in a large degree, upon the size and number of the vessels injured, but in a larger degree upon the space into which the blood can accumulate. A single divided vessel in the *scalp*, owing to *looseness* of the tissue there in which the vessels are distributed, may permit a swelling, the result of the escape of blood, extending in area over a half of one side of the head.

In Contusions, the first conspicuous symptom is that of *Shock*, which generally, but not always, bears a relation to the extent of

the injury. Thus a crushed finger is attended, as a rule, with much less shock than a crushed hand or foot. Contusion of certain parts, as the larger joints, breasts, and other portions of the body, are followed by most *severe* symptoms of shock. The *pain* is not always as severe as might at first be thought, for it is said the nerves are so much injured as to be deprived of their ability to receive and transmit the necessary impression. The *swelling* depends, at first, largely upon the *blood* poured out by the injured vessels, and as just said, this depends upon the *number* and *size* of the divided vessels, as well as upon the *character* of the part containing them.

Treatment.

In the milder Contusions, there is but *little* shock. Should there be more, place the patient on the back, head not elevated, and give stimulants as directed. See Shock, p. 25. The next thing is to limit the consequences *likely* to ensue from the ruptured blood-vessels. This is best done by lessening the *supply* of blood to the part by *elevating* it, if possible, above the heart, and using cold applications in the shape of powdered ice, tied up in towels, to the part; and along the course of the larger vessels going to the injury.

A large piece of ice secured in a towel, so the fragments can not escape, can be reduced to fine fragments by a blow or two against the wall. After it has remained on for a time, the water may be substituted in the shape of a drip;* or several thicknesses of wet towel may be applied, only they must be dipped in cold water, squeezed out, and changed every sixty seconds. If not changed, the wet towels really act as *poultices* to the part, *inviting* what we should try to *prevent*. When the Surgeon appears, special mea-

* A pitcher, or some other vessel of water, placed higher than the limb, with a moistened string or strip of linen. The end of the string is placed in the water, the other hangs down on the outside, so the water will drip along the string from the vessel to the injured part.

sures will be directed by him. Recollect it takes a great deal of heat to convert ice into water, and water into vapor, and if the patient has not got this heat, symptoms of chilliness will be observed. When this happens the application must be *stopped* and the moisture must be taken up by a towel; particular attention always being paid to keep the bed-clothing, and every thing else, perfectly dry and neat.

Discoloration is due to the color of this escaped blood, seen through the cuticle, and varies from blackness usually indicating intense injury, so that the blood itself is poured out, through dark blue, purple, crimson, down to delicate pink, indicating only a blood-stained fluid.

After *preventing* the escape of blood from the vessels, as far as *practicable*, there remains to get *rid* of what has *already* been poured out. In some forms, the assistance of professional advice will have been secured. In simpler cases, the blood, at this *later* stage, should be encouraged to flow through the now repaired vessels and the neighboring vessels as much as possible. By this means the diseased particles are, as it were, picked up, as physicians say, *absorbed*, and replaced by healthier ones. The color of the part gradually fades in proper time, and the injury is said to be restored. Gentle frictions of the part and neighborhood, the application of dry heat, and stimulating lotions, as Alcohol, Camphorated Soap Liniment, with other simple things of the same character, are often used with the intention of *assisting* this process of nature.

A common accident is a "mashed finger" from the member getting caught in a closing window, or want of precision in using a hammer. The firm bone beneath and the blow above usually contuse (bruise) the tissues (veins, vessels, muscle, etc.) between, and often the pain and other symptoms last some days.

Wrap up in a bandage of old muslin, keep constantly wet with cold water. If there is much pain add Laudanum (p. 130), or the

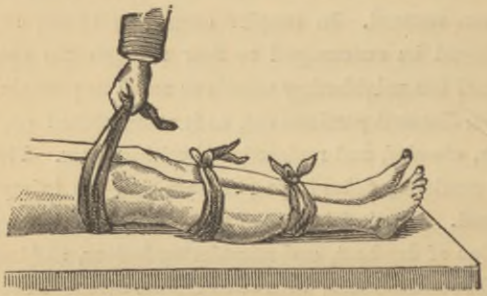
Tincture of Arnica (p. 129), recollecting they are not curative agents, but only lessen the pain by benumbing the injured nerves.

It is unnecessary to say that a "mashed toe" is to be treated in the same way.

The discoloration and swelling (p. 34) may remain some days after the pain subsides. Stimulating Liniments can now be used to encourage an extra flow of pure blood to the part, and the washing away of the injured blood.

FRACTURES AND DISLOCATIONS.

It is often evident to a bystander that a Fracture or Dislocation exists, without knowing what can be done in the interval which must elapse before the arrival of competent professional assistance. Of course no one but a very ignorant and bold man would attempt to do more than make the sufferer *comfortable* in the meanwhile.



In instances of suspected Fracture or Dislocation of the lower extremity, the injured parts should be placed in comfortable position, and as well supported as possible, to prevent the *twitchings* of the leg from the spasmodic action of the muscles of the injured extremity. If necessary to remove the patient to his home or the hospital, from the spot where the accident happened, the arrangement of the limb should be made after he has been placed on the stretcher or substitute.

If found necessary to carry the injured person some distance, and a litter for the purpose can not be had, the arrangement of the

fractured limb against the other, and kept there by handkerchiefs, as shown in the cut, is often of great comfort to the sufferer.

If the general character of the injury is evident, in sending for the surgeon it is best to tell the messenger, so that, as far as possible, the necessary appliances can be provided before leaving the office.

In the mean while, under no circumstances, should the bystanders be permitted to handle the affected part beyond what is absolutely necessary. As a general rule, a much longer time than is commonly supposed, by most people, may pass between the occurrence of the accident and the arrival of the surgeon without serious injury to the patient or ultimate disadvantage to the fracture. Many persons, thinking that the broken bone must immediately be "set," are apt to accept the services of the first person arriving asserting himself qualified to do it. Such an individual necessarily makes a more painful examination than is necessary, applies the splint—perhaps not at all the most useful—which the surgeon, arriving later, is obliged, out of consideration for the condition of the sufferer, to acquiesce in.

If the injury is to the upper extremity, the part should be placed in a supporting sling, and kept in a comfortable position.

Sometimes, owing to the severity of the injury, or the condition of the general health of the person at the time, symptoms of Shock, from the mildest expression to insensibility, are observed. In such a case, the measures of treatment suggested under that head can be followed until other advice is obtained (p. 24).

Dislocations.

These result from force applied in such a way as to dislodge the surface of one bone from another; what is called the head of the bone slipping off into a neighboring depression. Of course the ligaments binding the parts together are torn and stretched, beyond the point of slight elasticity found in such tissues, and the adjacent parts are badly contused (bruised), p. 3.

No direction can be given for detecting a dislocation. It is sometimes evident to the sight, but the possibility of a fracture must be remembered, and the patient made comfortable, without *handling* the injured parts until aid can be summoned. A dislocated joint is always afterward a weak one, and a small part of the force originally used will produce a return of the trouble.

Sprains.

In a sprain, the joint is twisted, so that the ligaments binding the parts together are severely stretched or even torn, with consequent violence to the delicate lining of the joint. A sprain is understood to be short of displacement of the surfaces of the bones, which would be a dislocation.

They most frequently occur at the wrist and ankle-joints. The injury is rapidly followed by inflammation of the joint and adjacent parts. Not only is the joint directly weakened by the injury, but if there is a tendency to rheumatic disorders, or the constitutional leaning known as *strumous*, no little future trouble often follows.

There is, of course, great pain, and if it is the ankle or wrist-joint injured, often nausea. The tendency to inflammation should be discouraged by resting the whole body, and keeping the sprained joint elevated. Cold water in the shape of a "drip" (p. 32), should be used plentifully until the opinion of a physician can be taken. Complete rest must be kept up until the inflammation shall have passed and the probably torn ligaments been restored. Later, stimulating liniments can be used. Often a fracture of the shaft of the bone results in a speedier restoration than the sprain of an ankle-joint.

WOUNDS.

For systematic study, wounds may be classified according to their direction, or depth, or locality ; but for our purpose they may be arranged after the mode of their infliction : (1.) Incised wounds, as cuts or incisions, including the wounds where portions

of the body are clearly cut off; (2.) Punctured wounds, as stabs, pricks, or punctures; (3.) Contused wounds, which are those combined with bruising or crushing of the divided portions; (4.) Lacerated wounds, where the separation of tissue is effected or combined with tearing of them; (5.) Poisoned wounds, including all wounds into which any poison, venom, or virus is inserted.

Any of these wounds may be attended with excessive *hemorrhage* or *pain* or the presence of dead or *foreign* matter. As all wounds tend to present several *common* features, a few words will be said about them before describing the distinctive characteristics of each.

The first is hemorrhage (bleeding). This depends, as to *quantity*, upon several conditions, the chief of which is the *size* of the *blood-vessels* divided; and, to a degree, upon the *manner* in which it has been done. A vessel divided with a *sharp* instrument presents a more favorable outlet for the escape of blood than one that has been divided with a *blunt* or serrated instrument, or one that has been *torn* across. Except in the first named, the minute fringes or roughness necessarily left around the edges of the vessel at the point of division *retard* the escape of blood, and furnish points upon which *deposits* of blood, in the shape of clots, can take place. Hence, all other things being equal, an Incised wound is usually attended with more *hemorrhage* than Contused or Lacerated wounds.

Personal peculiarities of the patient, and the health or disease of the wounded part of the body, may exert much influence upon the hemorrhage. Usually it ceases in a short time by the coagulation

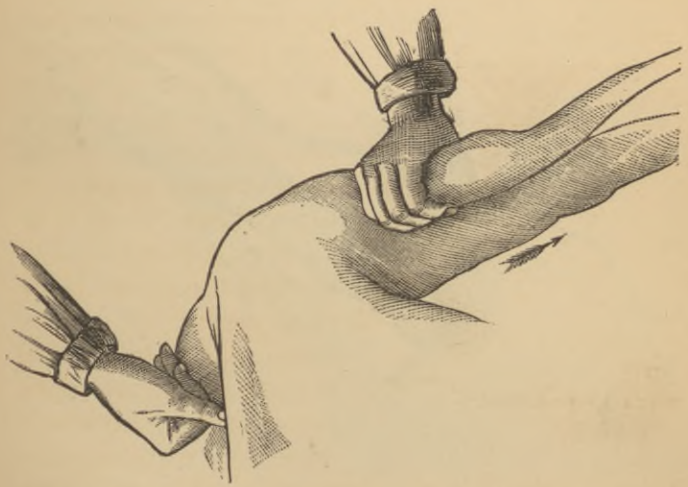
(clotting) of the blood in the severed extremity of the vessel, without further attention than the application of cold, which favors *contraction* of the blood-vessel divided, as well as those leading *to* the injured part. Should an *artery* or branch have been divided (indicated by a *spurting* of a spray of bright blood at each beat of the heart), the bleeding may not cease at once. To stop it, the firm pressure of the finger for some time to the point of division should be used, to diminish the size of the vessel at that point, until a clot is formed there.

Sometimes, pressure to the supposed seat of the injured vessel does not *reach* the artery. In such a case, the pressure must be used to some known trunk between the original supply of the blood and the injured branch. Thus, if the finger or the toe is the seat of the arterial hemorrhage, firm pressure applied each *side* of the finger, close to the hand (as in the cut) or toe, close to the foot, compresses the arteries passing along to be distributed to the extremity. If the hand or foot is the seat of injury, pressure on the wrist, over the point where the artery is felt for the "pulse," or at the inside of the ankle, will materially retard the passage of the blood beyond those points. Should pressure by the thumb at these suggested points not answer the purpose, the main trunk of the artery, higher up, should be compressed by a tourniquet. Before this is done, it is always well to place the person injured flat on his back, and hold the arm and hand in a perpendicular position for a time, as the heart will then be unable to throw the blood with its usual *force* to the extremity. Pressure applied by the fingers, with

broken ice in a towel bound round the arm, in conjunction with the elevation of it, will often stop the hemorrhage, or retard it, until professional aid is secured. If the foot is the seat of the injury, elevate the whole limb in the same way, applying pressure and pounded ice on the same principle.

In wounds of the scalp, there is usually much loss of blood, owing to the abundant blood supply of that part. The firm skull below offers a good point for pressure, and the vessel rarely fails to be compressed if the thumb is applied over the point of division of the severed vessel.

The *amount* of blood actually lost is apt to be much over-estimated. Quite a *small* quantity will seem "a half pint" if distributed over the clothing, and a gallon of water requires no great amount added to it to give it quite a blood-red color. It is esti-



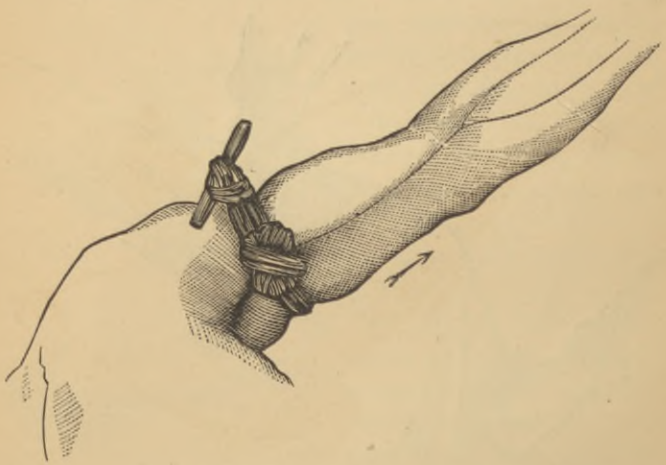
NOTE.—The arm and forearm, with dotted lines, indicate the course of the arteries, and points at which pressure can be most judiciously applied.

The arrow points the course of the current of the blood of the artery, from the heart to the extremities.

mated that about one eighth of the weight of the entire human body is blood ; in other words, the quantity of blood in a human body weighing 144 pounds would be about 16 or 18 pounds. Of course, this amount, nor half of it, perhaps, can be withdrawn from the vessels without fatal results ; but it is merely mentioned to show that the entire quantity asserted to exist by physiologists is *much larger* than is popularly supposed. When hemorrhage from a divided blood-vessel is seen, there is usually much more apprehension and excitement about it than is warranted.

This figure shows the method of exerting pressure by the fingers along the course of the Brachial Artery ; between the divided vessel and the heart.

If the wound should be in the arm above the point indicated by the fingers, or in the axilla ("arm-pit"), pressure could be made



NOTE.—The arm and forearm, with dotted lines, indicate the course of the arteries, and points at which pressure can be most judiciously applied.

The arrow points the course of the current of the blood of the artery, from the heart to the extremities.

by the thumb, a blunt stick, properly protected, or the handle of a door-key upon the Sub-clavian Artery, which passes, as the name suggests, along under the clavicle ("collar-bone") and down the arm, where it is called the Brachial Artery—just spoken of. Further down the arm at the elbow, this vessel is subdivided into two others, each following a bone of the forearm to the wrist. At the wrist, over one bone, near the surface, the pulsation of the heart is sought by the finger of the physician.

Permanent pressure exerted by means of a temporary tourniquet to the Brachial Artery is spoken of on the other page. A common folded handkerchief, with a firm, sharply-defined knot tied at the middle, a long strip of muslin torn from a shirt-sleeve, or a suspender, with a suitable knot in it, is rather loosely tied around the arm, and the slack taken up by twisting with a cane

NOTE.—The thigh and groin, with dotted lines, suggest the course of the large arteries, and point at which pressure can be most successfully used.

The arrow indicates the direction of the current of the blood of the artery, from the heart to the extremities.

or stick until the knot, kept over the vessel, exerts enough pressure to prevent the passage along it of the blood.

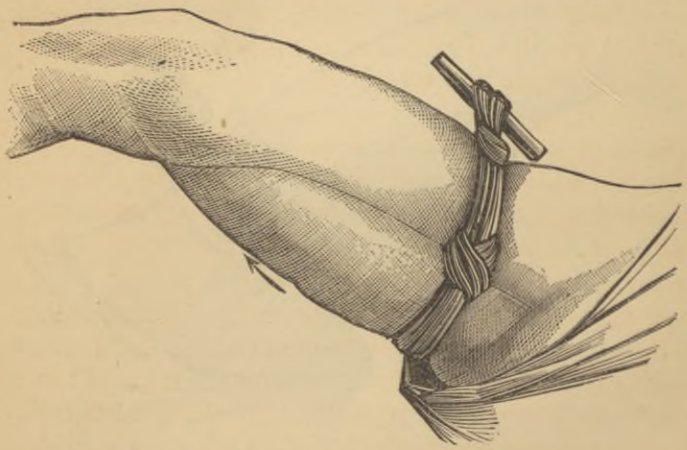
This is easily done if you proceed to it quietly, without talking; especially if previously practiced once upon the extremity of a friend.

The method of exerting pressure by the fingers along the course of the Femoral Artery, between the wound and the heart.

Sometimes it is easier to find the artery nearer the surface, at a point long the dotted line, or a little higher up toward the groin. The two thumbs placed together furnish firm resistance ; and a blunt stick, suitably protected, will often answer to keep up the pressure until a tourniquet can be extemporized.

The muscular condition of the entire leg does not permit the pressure of the fingers to be as successfully exerted along the main arteries, as in the case of the arm just spoken of.

This cut presents the tourniquet made as directed on page 41,



NOTE.—The thigh and groin, with dotted lines, suggest the course of the large artery, and point at which pressure can be most successfully used.

The arrow indicates the direction of the current of the blood of the artery, from the heart to the extremities.

by getting a large firm knot in a handkerchief, or any thing else of the kind. A small pebble has often been introduced for the purpose, into the knot, with success. Twist the ligature with the leverage obtained by passing under it a cane or stick.

Get the knot over the artery—keep the knot there, and tighten until the pressure of the knot closes the vessel.

It is much easier done than imagined, especially if the individual has some day spent three minutes practicing the preparation of the ligature, and its application over the course of the artery of a friend.

There is no necessity for the alarm often shown, especially as it obscures the judgment of those who, if they would but reflect a moment, could much more serve the true interests of the sufferer by keeping cool and collected.

Pain, it may be said, accompanies all wounds, for it is almost impossible to sever a blood-vessel without severing nerves. It is usually much less severe than might be thought, and as little can be done immediately to relieve it, other prominent features of wounds in general will be spoken of.

Fainting, after a severe hemorrhage, or in "nervous" persons, frequently requires attention, after the loss of blood has been placed under control. Often it is due to the *sight* of the blood, and an undefined apprehension as to the extent of the injury on the part of the wounded person. The latter feeling is in part derived from the excited and frightened appearance of those about. A person with a wound attended with hemorrhage, ignorant of its extent and consequences, seeing his friends, upon whom he must necessarily rely for succor, in such a state of alarm that he can expect little real aid from them, can not be said to be in a comfortable state of mind—and is apt to faint.

The symptoms of fainting are too well known to need description here, especially as something is said about them under the head of "Shock," p. 22. The person suffering from fainting should be placed on the back, if possible, the head slightly raised,

if at all, obstruction to the circulation in the shape of cravat and collar removed, and any obstacle to perfect movement of the chest likewise dispensed with. For an adult, a tea-spoonful of Brandy, in a little water, may be given every few minutes, until consciousness and restored action of the heart is observed. Twenty drops of Aromatic Spirits of Ammonia, in a tea-spoonful of water, at short intervals, say every five or ten minutes, is quite as useful, but not always as easily secured. *Too much* stimulation in such a case might do harm, by causing the heart to send the blood with such force as to disengage the little clots spoken of at the divided extremity of the vessel.

If the loss of blood has been great, or the condition of the patient before the receipt of the injury such that the loss can not be rapidly restored, the fainting may not rapidly or completely disappear. In such cases, beef-tea and easily digested nutritious food, and even tonics, will probably be recommended by the medical attendant.

Foreign matters, such as have been introduced into the wound at the time of the injury or subsequent to it, of course, should be carefully removed.

Having thus referred to certain features *common* to most wounds, the special, and what may be called the *distinctive* points of each class, according to the arrangement herein adopted, will now be given.

Incised Wounds.

After the hemorrhage ceases, and the clots, with any foreign matter, have been carefully and gently removed, by a judiciously directed stream of water from a sponge, the separated surfaces and edges of the wound should be brought carefully together. To *retain* them in position until union has taken place, strips of adhesive plaster may be used. This being a resinous preparation, it soon becomes dry, and useless for the purpose. Hence get but little at a time, and replenish with recently prepared as often as is necessary. In cities, it can usually be had good from the large

shops, where large sales prevent an accumulation of stock. With a pair of scissors, cut it lengthwise, into uniform sized strips of about a quarter of an inch in width, or even less in some instances. These can be subdivided in length, so as to extend across the wound, and far enough on each side to secure a suitable *hold* on the skin. Warm the plaster side of the strip at the fire until it becomes thoroughly and uniformly melted, then beginning with one end (recollecting that the *centre* of the strip should cross the incision) rapidly and completely attach it to the skin, as a rule at *right angles* to the line of the cut. As the middle part approaches the wound, with the fingers bring up the skin toward the incision, from the *other* side, upon which the other half of the strip is to rest ; then rapidly attach the rest of the strip.

If this is not done, the strip of plaster will be found in folds, owing to the yielding of the soft skin beneath, and the edges of the wound *separated.* If *one* strip will keep the edges approximated along the whole length of the wound, no more is needed. If not, use others. Where more than one is used, the edge of the strip should be brought across a short distance from the extremity of the wound, so as to permit the ready exit of blood or pus. Confinement of either or both by the plaster, or any thing else, favors "burrowing," as it is called, and consequent *separation* of the wounded surfaces. On the scalp, the face of men, and the extre-

mities of some persons, the hairs must first be shaved off the skin, or the plaster will not remain attached.

Most persons, in using adhesive plaster on a wound, apply a *large piece*, or several small pieces, so as to completely *cover* it. This must not be done. A few drops of blood retained after *such* an arrangement, even when the edges of the wound have been carefully brought together, undergoes decomposition, irritates and inflames the parts, loosens the plaster, and *changes* what otherwise should have been the result of the accident.

Adhesive plaster is best for use, but as it is not portable, often in an emergency it is easier to get *Isinglass* plaster. This is a thin tissue of silk spread on one side with a solution of isinglass or other gelatinous substance. *Heat* is necessary to soften *adhesive* plaster; but *moisture* dissolves *Isinglass* plaster. As in most wounds there will be some liquid discharged, it can be seen at a moment's thought why Adhesive plaster will *remain* attached, while Isinglass plaster will become detached.

When Isinglass plaster only can be procured, it should be cut into narrow strips, the adhesive side moistened, and then applied as above directed. The black variety of Isinglass plaster, usually sold in small envelopes, is scarcely fit, as a general rule, to be used.

Speaking of plasters, the writer will say that on one occasion, where none was to be had, the edges of an incised wound of some length were successfully brought together, and held there, by a *postage-stamp* divided lengthwise into four strips.

In shaving the face, cuts are sometimes made which bleed to a troublesome extent. A crystal of common alum should always be kept with the apparatus, the bleeding absorbed by a fold of the towel, and then, before the blood can accumulate, thrust into the incision the edge of the crystal, holding it there a few minutes. If the bleeding continues, it is because the alum does not *reach* the divided vessel, and the wound should be wiped out until it can.

If the incision is deep, or there are not good points for attachment of the plaster, *sutures* are often employed by the surgeon.

No definite rule can be given for the circumstances *requiring* them or the method of *using* them. An ordinary sewing needle will not answer, but a needle with a *cutting edge*, such as saddlers and glovers use for stitching leather, can be secured, if the regular surgeon's needle can not be procured. The suture is of white silk, or possibly white flaxen thread might answer in an emergency. Surgeons now generally use fine wire of silver or iron, as metal irritates the part it comes in contact with less than a rough thread.

The edges of the wound having now been properly brought together, and retained there, the next thing is what is called the "dressing." All manner of things were once used for this purpose, under the impression that they were healing. They are now used by surgeons simply for *protective* purposes. The *simplest* are therefore the *best*. Hence water is now used, under the name of *Water Dressing*. As Isinglass plaster is softened by moisture, water can not, of course, be employed when this material has been used for retaining purposes.

Take two or three thicknesses of what is called Patent Lint, if it can be conveniently had; if not, of old linen, or even old muslin, somewhat larger than the wound.* With a pair of scissors or a sharp-pointed knife perforate the folds, dip in cold water, and after squeezing out the excess, evenly apply to the wound. To *retain* in position, a strip or two of adhesive plaster can be thrown over, or a small roller (bandage) may be lightly applied. Keep the linen, or substitute, constantly *wet*, not moist, with water. Sometimes the wounded member is supported in a sling.

This dressing is so simple, and at the same time so useful, that surgeons are apt to use no other in simple wounds; but, unfortunately, it is so simple, that many persons, unless they are intelligent, have no confidence in it. They prefer pain-killers, lini-

* By "old linen," many persons think the linen bosoms of old shirts is meant. For the purpose mentioned it is practically useless. An old damask linen table-cloth furnishes the best, and next to it, perhaps, old linen sheeting, quite coarse in texture.

ments, herbs, and salves. Remember, the *natural* reparative process unites the parts, and the effort of the surgeon is only to put the parts in the position best calculated to *favor* this to advantage. All foreign matters, never mind under what name, as a rule, are obstacles, not aids, to this process of nature.

In using water as a dressing, or application of any kind to the surface, if a sense of chilliness appears, its use should be discontinued for a time. As said elsewhere, the conversion of the liquid to a vapor requires much more heat than might at first be supposed. When the chilliness is observed, a little of some kind of stimulant may often be useful.

If the pain is severe, sometimes opium, in the form of Tincture of Opium (Laudanum) is added to the water applied.

After a certain time, usually twenty-four hours, occasionally sooner, sometimes later, the outside strips of plaster holding down the *lint* should be divided, the parts removed, and the lint carefully removed, after loosening it as far as is practicable by moistening with tepid water. Should any portion be closely adherent to the wound, or any part of it, through coagulation of blood or escape of pus, and fail to become detached under delicate manipulation, with a sharp pair of scissors divide the lint as near as convenient to the point of adhesion, letting the fragment remain, with the hope that by the next time separation can be secured.

The adhesive plaster now only remains, and if it has been properly applied, the condition of the wound can be easily determined. If there is no discharge of blood or other material, the plaster should be let alone, and another piece of lint and retaining strips applied, and kept wet with water as before.

The next day the same examination should be made. If blood or pus is found, remove it with a soft piece of moistened sponge, being very careful not to disturb the wound or the strips of adhesive plaster. Should any strip have become loosened, remove it by catching hold of the extreme end and separating it gently and slowly until detached almost up to the line of the incision; then

drop that extremity, taking up the *other*, and go through with the same thing until only the central portion over the wound remains to be separated. This is done too lessen the chance of tearing the wound *apart*, which pulling at *one* end of the strip would favor. With a little soap and water then remove the remains of the resinous portion of the plaster from the skin, dry gently and well, and apply a fresh strip as a substitute for the old, observing all the precautions suggested.

These remarks apply, of course, to a simple incised wound, when union takes place at once, or with but little suppuration (making of pus). This can not always be secured, from suppuration of the sides of the wound after the dressing has been applied, or an unfavorable condition, as it is said, of the blood. In such a case, the blood or pus must be removed once a day, as a rule, the surfaces of the wound kept together as much as possible, by adhesive strips, until a junction is effected. Do not use too much soap and water, as the only object of them is to better and more easily remove the foreign matters (blood and pus), which, if retained, act as irritants ; but not to remove the *reparative* material poured out by nature for *joining* the separated surfaces.

If, owing to the general health of the patient, or a new character given the wound by some unavoidable mishap during the course of treatment, there should be decided suppuration, the injury may require more frequent dressing, especially in hot weather. In such a case, if the wound has up to this point been without professional advice, it may be better to consult a physician, as a suitable tonic, a different diet, or even some local applications to the seat of injury, may be followed at once by an improvement in its appearance.

A common accident is a "cut finger." Sometimes there is considerable loss of blood, but this usually ceases on bringing the edges of the wound together and then gently compressing the part. Do not use "plaster," but bring the surfaces together properly and apply a suitable bandage.

"Arnica" and "liniments" can really be of little use, for getting between the wounded surfaces they tend to act as a thin wedge and discourage union. If there should be much pain, a little Laudanum (p. 130), Tincture of Arnica (p. 129), can be added to the water used for keeping the bandage wet.

Under the classification adopted, have been included with incised wounds those instances where portions of the body have been cleanly *cut off*. Never mind what part it is, if the excision has recently taken place, the separated portion should be taken, rapidly freed from any foreign matter, and applied to the part from which it has been separated, in the position it previously occupied. Should the weather be cold, some raw cotton might be applied around it to preserve the *warmth*, and some measures inaugurated by which gentle and uniform *pressure* can be kept up for a reasonable time. After making all allowances for the remarkable stories told in reference to such things, there is no doubt that much can be said in favor of the practice and little against it ; for if circulation and adhesion are not restored, it can be said that only a little time has been lost.

Punctured Wounds.

These vary in their importance, not only according to the *depth* of the wound and the *structures* penetrated, but according to the *instrument* inflicting them. The chief peculiarity and danger of these wounds is, that their nature does not afford *sufficient* facility for the escape of blood, other fluids, or foreign matters. The retained fluids decompose, or, by mere pressure, irritate the adjacent parts, or, by distention, enlarge the original wound.

In *punctured* wounds the essential idea is to treat as an *incised* wound; but their peculiar character, greater in depth than external area, requires a somewhat different plan of procedure. Remove whatever foreign matters have entered the wound, and apply a pad to the outer wound, so that it will, if possible, moderately and uniformly exert some pressure along the deeper portion. The wound fills up with blood, and as it can not escape externally, on account

of the pad, it clots, and closes the open ends of the divided vessels, by *pressing* upon them. If the wound was made with a *blunt*-pointed instrument, it is practically, as far as *union* of the divided surfaces is concerned, a *contused* wound, which will next be alluded to, and will heal as such. If with a *sharp* instrument, the wound often heals as an incised wound ; and if there is no discharge to require it, the pad may be left in position, as strips of adhesive plaster would be in an incised wound, without disturbance, until union of the divided surfaces is complete.

In case much pain follows, with signs of inflammation around the injury, the dressing (pad) must be removed, to permit the *escape* of the results of inflammation of the deeper portions of the wound. Sometimes even the *external* opening of the original puncture is not large *enough* for the exit of pus and other discharges. In such a case, the surgeon must enlarge it until the requirements in this respect are properly met.

Once a day, or oftener if the wound is discharging, it should have the dressing changed, to insure neatness and escape of pus. If certain structures are invaded by the puncture, the surgeon is often at a great deal of trouble to insure healing at the *bottom* of the wound first, to guard against the *burrowing*, as it is called, of pus between the muscles and other contiguous parts.

Under the head of "Punctured Wounds" may be mentioned a trivial set of injuries, quite frequent in occurrence and often attended with serious *consequences*. They are produced by the running in of a thorn, splinter of wood, or a piece of metal. The foreign body is pulled away in most cases, if it can be done readily ; if it can not, it is let alone, as the phrase is, "to work out." In all cases, if a splinter or thorn, it should be got out. Not by poking at it with a needle, or something of the kind, which *adds* to the irritation, but by making an incision along its course, so as to expose it enough to get a sufficient *hold* upon it. If the incision should not permit a removal, a more ready escape has been made for the foreign body and any pus ("matter") that may form;

thus lessening the probability of the constitutional excitement exerted through the nervous system known as Tetanus (Lock-jaw). If the splinter is under the finger-nail, and can not be pulled out, do not waste the outside end by picking at it. The nail immediately *above* should be *scraped* as thin as possible by a piece of glass, and then the thin nail overlying should be split with the blade of a knife, or an incision made on each *side* of the splinter, the little tongue of nail between the incision removed, exposing the upper surface of the splinter along its entire course. The restraining pressure of the nail upon the foreign body is in this way gotten rid of, and at the same time an outlet for the products of inflammation is given.

A piece of lint, wet in water, to which a good deal of Laudanum has been added, should be applied, and kept wet with it as long as may be necessary.

When the finger or hand, toe or foot, has been pricked, particularly by any thing foul, as a rusty knife or nail, a dirty piece of horn, or bone, the opening does not permit the escape of the retained foreign particles, and inflammation results. The skin on these parts is so thick that it can not yield when the parts beneath are irritated and inflamed, and the inflamed portion, as it were, tightly bound up, or squeezed as in a vice, by the hard skin, and the almost always fatal condition of affairs known as Tetanus (Lock-jaw) supervenes in many cases. Whenever such wounds, to such parts, are received, an incision should be made into the puncture, thereby providing a suitable escape for the blood, pus, etc. ; and a piece of linen dipped in Laudanum forced into the wound. This can be done by almost any one, and may save serious trouble.

In washing clothing, scrubbing and scouring, a fragment or even an entire needle is sometimes forced beneath the skin. Do not attempt to get it out, but hold the part perfectly quiet until a surgeon can be procured. The slightest movement often places it beyond detection of the sight or touch. When this happens,

there is no occasion to be alarmed, as the *needle* slips in between the muscles, and can not even be felt as painful. It does no harm there, as inflammation almost never results. Occasionally it is unexpectedly found near where it entered, and in a position favorable for extraction.

Contused Wounds.

As the name implies, these are divisions of the tissue with contusion (bruising) of the parts. Some of the tissue is generally removed, the edges rough and irregular, but there is generally less gaping of the edges and less bleeding, than of *incised* wounds of the same extent. The contusion impairs the contractility, as it is termed, of the parts, hence the less gaping of the edges ; and the blood-vessels have been *torn*, and the roughened extremity of each vessel soon favors a clot there, hence the less *bleeding*.

Contused wounds *especially* need careful cleaning out and removal of clots. The *general* procedure of treatment may be the same as for Incised Wounds, but with more watching for the occurrence of deep-seated inflammation and sloughing away of the contused edges and surfaces during the later process of suppuration. As soon as any alarming bleeding has been checked by the application of ice or cold water to the blood-vessels, or, if necessary, by pressure upon them, bring the edges of the wound together by strips of adhesive plaster ; *remembering*, in applying them to a contused wound, that there must necessarily be inflammation of the *bruised* parts, with consequent discharges. It is rarely that the *entire* wound is contused, although that may be its *general* character ; so a portion of it, often the extremities, unite as an *incision*, leaving the *rest* of it to pursue a different course. After sloughing (separation of the part whose vitality has been destroyed by the contusion from the living portion) has begun, *poultices* are often of use in favoring the process. After due time, the parts damaged beyond repair become detached, and the contused wound appears as a cavity more or less superficial in depth, lined with a velvety surface, more or less obscured with pus. After a

while the gap is *filled up* by these granulations (new, but immature flesh). When these granulations get above the surrounding edges of the wound, before they become consolidated, the appearance is popularly termed "proud flesh," and wrongly supposed to prevent the healing of the wound.

These granulating surfaces are sometimes stimulated to increased activity by the application of some simple stimulating ointment, or by gently brushing once a day, by means of a camel's-hair pencil, or the floating edge of a clean, soft feather, with a solution of Sulphate of Copper (blue vitriol), say a piece as large as a grain of coffee, dissolved in a couple of table-spoonfuls of water.

Lacerated Wounds.

Lacerated Wounds are made by rending or *tearing* the parts, rather than by cutting, as in Incised, or by breaking, as in Contused Wounds. The treatment follows that of the latter named injuries, to which they bear a strong resemblance in most respects. The chances for union are subject to about the same probabilities, and should be favored the same way. These wounds often occur in the scalp ; sometimes a large piece is detached, and left hanging by a small attachment. *Never*, under any circumstances, permit the fragment to be *removed*, as the scalp is so largely supplied with blood-vessels, that injuries there of the most unfavorable aspect to an ordinary observer are often rapidly and completely repaired.

Poisoned Wounds.

This includes all wounds into which any poison, venom, or virus is introduced. The wound is not always made at the time of the introduction of the poison, but often exists previously. Thus, a scratch, fissure, or ulcer may exist on the hand or other part, and afford entrance to alkalies, acids, or other such irritants. When such a wound of the skin exists, and may be exposed to any irritating substance, great care should be exercised to prevent trouble

arising. Persons with such injuries to the hand have suffered most severely from skinning animals which have died of pleuro-pneumonia and other diseases. Physicians often decline making a *post-mortem* examination because a wound exists on the hand, and many have died under the circumstances, because they did not abstain.

If a poison should be introduced, and at once observed, before *absorption* by the system has taken place, a stick of Nitrate of Silver (lunar caustic) should be thrust into the wound, or, what is more certain would be to heat a large nail red hot and force the end into the opening.

Another variety of poisoned wound is when the poison is introduced at the time of the injury, as in the case of bites and stings of insects, and the bites of serpents and animals.

In this latitude, there are but few insects known whose bites can really be considered poisonous. A swollen face which can not otherwise be accounted for is often attributed to the bite of a Spider. Trouble rarely results from it, and when it does it will often be safe to ascribe a portion to the condition of the general health at the time. The bites of certain flies have been followed by symptoms of local poisoning, but it would be well, should it happen, to know where the fly had been just before.

The stings of insects, as Hornets and Bees, are always painful, and sometimes followed by great swelling. A stimulating application to the injury, as a drop of Aromatic Spirits of Ammonia, will often afford the greatest relief. A pinch of common table salt, dampened with water and rubbed in, is very useful for the same purpose ; likewise a slice of onion rubbed on gives almost instant comfort.

There are few serpents, likewise, in this latitude, whose bite is followed by poisonous symptoms. The bite of the common Rattlesnake is a well-known exception to the rule. Where a person has been bitten by one of these serpents, there is usually little time to be lost. If it is the hand or other accessible part, the

fold of the skin containing the puncture should be gathered between the teeth, and the strongest suction of the lips used to extract the venom. If there is no laceration or other injury to the skin of the lips, or the mucous membrane of the mouth, it can be done with *impunity*.

The symptoms are a slackened action of the heart, indicated by a feeble pulse and other appearances of prostration, indicating the free use of stimulants. Marvelous stories are told of the quantities of whisky and brandy taken under these circumstances by persons not addicted to the use of them. Either are usually to be had on such occasions, and it might be wise to give of them freely at brief intervals, until symptoms of slight intoxication appear. As the heart is much enfeebled in its power, it would readily suggest that the person bitten should be made to lie down on his back, as that is the position where the strength of the heart is least taxed.

BITES.

Independent of the consideration whether any *poison* has been introduced through the wound, Bites may be regarded as a *lacerated* as well as a *contused* wound. There is usually a good deal of sloughing of the bitten parts, and no small amount of pain, owing to the nature of the wound. Care should be taken to remove from the wound any particles of clothing, should any have been forced into it, then wash out with tepid water with a little Castile soap. Usually the part is so much *contused* that no effort is made to secure adhesion of the opposite sides of the wound; but water dressing is at once applied, and suppuration and sloughing awaited. The pain is often quite severe, owing to injury to the nerves, in which case some anodyne, in the shape of Laudanum, should be added to the water used as the dressing.

Bites of Dogs.

Rabid dogs are much less frequent, perhaps, than is generally thought ; and a rabid dog, it may be supposed, might bite many

human beings without necessarily communicating Hydrophobia. In the first place, the chances are that the saliva would be *arrested* by the *fabric* over the part bitten, if there should be saliva in the mouth of the dog at the instant ; and if, as is said, the saliva is not *itself* poisonous, but that the poison is *mixed* with it, the saliva might not, at *that* moment, contain any. It is stated, by what is considered competent authority, that of dogs bitten by others known to be hydrophobic, scarcely more than one in four become affected ; and it is likewise said, that among human beings, when no precautions are taken, not more than one in ten or fifteen are affected after being bitten. The celebrated surgeon, John Hunter, knew of twenty-one people who were bitten by the same dog, and only one of the number had the hydrophobia. It should be added, however, that it is not stated that this individual had not been bitten by some other dog than the one which bit him in common with the rest. Besides, many persons have, undoubtedly, died, after having been bitten, with convulsions, not of hydrophobia, but the result of anxiety and fright. One well-known physician, after having been bitten, as a precautionary measure, blew out his brains.

Some writers, of no mean repute, assert that the bite of a healthy dog, when under a state of anger or fright, may communicate hydrophobia, or another disease like it, from some change effected by the emotion, in the character of the saliva. It is likewise contended that it may spontaneously arise in animals.

However, as these things can not be demonstrated to the satisfaction of the victim or his friends, and there is no known remedy for the disease, it is always best, after a bite by a suspected dog, to act "on the safe side."

Therefore, *at once*, remove the clothing, if any, from the bitten part, and apply a temporary ligature *above* the wound. This *interrupts* the activity of the circulation of the part, and to *that* extent delays the *absorption* of the poisonous saliva by the severed blood-vessels of the wound. While other things are being hurriedly

prepared for, some one whose lips and mouth are free from breaks might attempt suction of the wound. The material extracted by the act, apparently chiefly of blood, should, of course, at once be ejected from the mouth of the person giving the assistance. The *bite* is *really* a *lacerated* and *contused* wound, and lying in the little roughnesses, and between the shreds, is this poisonous saliva. If by any means these projections and depressions affording the lodgment can be removed, the poison must go with them. If done with a knife, the wound would be converted, practically, into an incised wound, and would require treatment as such. If a Surgeon is about, he would probably stand a probe upright in the wound, and with a sharp knife cut the entire injured portion out. Professional aid is not always at command, and in such a case it would be well to take a poker, or other suitable piece of iron, heat it *red* hot, at least, in the fire, wipe off and destroy the entire surface of the wound. As fast as destroyed, the tissue becomes white. An iron at *white* heat gives less pain than one "black hot," as smiths say; for in the latter instance the heat is scarcely sufficient to *destroy*, but only *irritates;* while in the former, the greater heat at once destroys the vitality (kills) of the part with which it comes in contact. With a properly heated iron, not only the *surface* is destroyed, but the destructive influence extends beyond and into the *healthy* tissue, far enough, if no point is neglected, to assure the purposes for which it is used.

Some are inclined to think that if the wound is at once well wiped out, and a stick of solid nitrate of silver (lunar caustic) rapidly applied to the entire surface of the wound, little danger is to be apprehended. It acts, but in a milder degree, like the heat of the iron upon the tissues. In case the heat or the caustic have been used, poultices and warm fomentations should be applied to the injury to hasten the *sloughing* away of the part whose vitality has been, in this instance, *intentionally* destroyed.

There is a strange belief among the ignorant, particularly

among the people from Ireland, that, whether the dog was "mad" or not at the time of giving the bite, if it should become so at any *future* time, the disease will appear in whatever individual the animal has bitten. A dog, after having bitten a person, is apt, under this mistaken belief, to be at once slain. This should not be done, but the *suspected animal placed in confinement*, and watched, under proper safeguards, for the appearance of the disease. Should no satisfactory appearances indicate the disease in the dog, it can be seen, in a moment, what unnecessary mental distress can be saved the person bitten and his friends.

This mysterious disease, although known from the days of Homer and Aristotle, has never yet been cured or understood. Animals communicate it to each other, and to men, by the bite; but no known instance is recorded where one human being has communicated the disease to another, although many patients, in their spasms of Hydrophobia, have bitten their attendants, as they have done in spasms from other causes.

There are many popular errors in reference to this disease, some of them most grotesque in character. This terrible malady is known among scientific men as Rabies Canina (Rage of Dogs); but, from one of its symptoms, Hydrophobia (Fear of Water). So far from *fearing* water, the poor animal seeks it; but, owing to a spasm of the muscles of the throat, it is unable to quench its terrible thirst. Another prevalent but erroneous belief is, that the disease prevails among animals in the hot weather of midsummer, while the truth is, that it is more apt to occur in Winter, or the damp, cold days of Spring. As so little is known of the disease in the dog, and another common disease of the same animal (distemper) is often associated with it, the following, from Youatt, is inserted:

Mr. Youatt, whose description of Canine Madness is generally quoted and accepted, says, "The disease manifests itself under two forms: the *furious* form, characterized by augmented activity of the sensorial and locomotive systems, a disposition to bite, and a continued pe-

culiar bark. The animal becomes altered in habits and disposition, has an inclination to lick or carry inedible substances, is restless, and snaps in the air; but is still obedient and attached. Soon there is a loss of appetite, and thirst; the mouth and tongue swollen; the eyes red, dull, and half-closed; the skin of the forehead wrinkled; the coat rough and staring; the gait unsteady and staggering; there is a periodic disposition to bite; the animal in approaching is often quiet and friendly, and then snaps; latterly, there is paralysis of the extremities; the breathing and deglutition become affected by spasms; the external surface irritable, and the sensorial functions increased in activity, and perverted; convulsions may occur. These symptoms are paroxysmal, they remit and intermit, and are often excited by sight, hearing, or touch.

"The *sullen* form is characterized by shyness and depression, in which there is no disposition to bite, and no fear of fluids. The dog appears to be unusually quiet, is melancholy and has depression of spirits; although he has no fear of water, he does not drink. (The fear of water, it should be said, is acquired by experience, the effort of swallowing being attended with spasm of the muscles of the throat, afterward often extending to the rest of the muscles of the body.)

"He makes no attempt to bite, and seems haggard and suspicious, avoiding society, and refusing food. The breathing is labored, and the bark is harsh, rough, and altered in tone; the mouth is open from the dropping of the jaw; the tongue protrudes, and the saliva is constantly flowing. The breathing soon becomes more difficult and laborious; there are tremors, and vomiting, and convulsions."

In a recent paper,* the writer refers to a large number of well-authenticated instances were the bite of the common Skunk, or Polecat (Mephitis mephitica) has been followed, after the usual period of incubation, by symptoms of Rabies (Hydrophobia). Of the forty-one cases mentioned, every instance but one (a farmer, who knew of the danger, and had taken the precaution of using prompt preventive treatment) ended in death. This is more fatal than the bite of the rabid dog.

The wide distribution of this animal, the common Skunk, over the United States, and the readiness with which people might be

* Rabies Mephitica. Hervey, Rev. H. C. American Journal of the Sciences and Arts (Silliman's), May, 1874, p. 477.

exposed to its bite, should lead persons so injured by it to at once resort to the peculiar measures advised for the treatment of bites of suspected dogs.

WHITLOW.

Whitlow or "felon" appears as a small painful spot, rapidly increasing in size. It is an inflammation between the bone and the nourishing membrane surrounding it. A drop of pus forms, and gradually increasing, separates this membrane from its attachment, until the whole or a part of the bone dies (necrosis). So, the sooner this pus is let out, the better, as no amount of poulticing will dispose of it. The formation of the pus is known by the peculiar throbbing at the joint—sometimes compared to the fluttering of a fly there.

After opening freely, the little mass of dead tissue* ("core"), acting practically like a thorn or other foreign body, will come away as soon as completely detached ; and the wound slowly fills up. Whitlow is apt to occur in the spring and toward the end of summer, when people are debilitated, and unless this condition is corrected, a person who has had one, may have another. Sometimes, it seems almost an epidemic.

The best form of poulticing the finger is to keep a small cup or mug constantly filled from a supply of hot mush, and hold the finger in it with the heat as great as can be borne. The contents of the cup, if renewed every few minutes, will do the finger more good in twelve hours than a day's poulticing in the usual way. At night, if the pain is very great, a tea-spoonful of Laudanum may be applied to the finger.

* By the word "tissue," physicians mean the simple structural elements of the body, much in the same sense that the word "material" is used by builders. There is brain tissue, nerve tissue, muscular tissue, bone tissue, etc., of the body ; just as there is floor material, roof material, wall material, etc., for a house. These "tissues" are composed of still simpler structural elements ; and these, again, are composed of the higher chemical arrangements of the yet more ultimate chemical elements.

BOILS AND CARBUNCLES

Occur most frequently in persons with a certain form of impoverished blood, for which attention is often necessary. This does not mean a dose of "salts" as a "physic." The little boils threatening the face and neck, if taken in time, can often be discouraged by frequently touching the pimple with turpentine or with hartshorn liniment. If they proceed to the step further, the death of the little fragment of tissue, afterward discharged when detached, as a "core;" poulticing to favor this, must be resorted to. Laudanum added often mitigates the severe pain.

A Carbuncle is a much larger boil, and there is so much exhaustion from the discharges, loss of sleep from pain, etc., that the patient sometimes dies during the effort of nature to afford relief.

EARACHE.

Evaporate the alcohol from a tea-spoonful of Laudanum (p. 130); add half as many drops, as you started with, of Glycerine or Sweet-oil; make it milk-warm, and pour into the ear, catching hold of the tip and pulling upward toward the crown of the head (p. 67); or, wet a scrap of linen in a tea-spoonful of laudanum, dry before a fire, cut into bits, place in the bowl of a tobacco-pipe, light it, cover with a coarse handkerchief, insert end of the stem (mouthpiece), suitably protected so as not to hurt, into the ear of the child. Then apply the lips to the bowl and blow the smoke from the burning opium of the laudanum into the ear. Tobacco alone can be used in the same way. Either of these methods will afford instant relief in most cases.

TOOTHACHE

Is frequently neuralgia, and often due to decay. Heat to the face outside, and a heated half of a fig held inside, often relieve the former kind, and sometimes afford temporary relief in the latter kind. If the cavity can be cleansed out with a broom-splint

and filled with cotton, steeped in some of the evaporated laudanum, much comfort will be found from it.

FACEACHE

Usually is neuralgic, and heat applied is always grateful. A small hop-pillow heated and held to the face is useful ; or the face may be bathed with Laudanum, Tincture of Arnica, or any such substance. Mustard-plasters should not be used, as they leave a conspicuous mark, and often blister. Ordinary Cayenne pepper, mixed into a stiff paste, with an equal bulk of Indian-meal and Honey, is quite as active, as useful, and does not blister the skin.

CROUP.

Some young children, and the young children of certain families, seem peculiarly prone to this trouble. The well-known hoarseness of the voice, the rough, brazen cough coming on toward night, always suggest the possibility of an attack of croup. These symptoms, showing increased difficulty of breathing, rapidly grow worse, and all that is to be done must be done quickly. Of course, a physician should be sent for.

The first thing is to get the child to vomit, by giving it, every few minutes, a tea-spoonful of the Syrup of Ipecac, followed by draughts of warm water. As soon as vomiting commences, a warm bath should be given, the skin well dried with a soft warm towel, and the child returned to bed. A properly made and carefully applied warm poultice may be placed against the upper and front part of the chest, being very careful, after removing it, to substitute a warm flannel. In doing these things, do not expose the skin to the *slightest* draught, of what may be to it, cold air.

After the child vomits, or should it seem weak, five drops of the Aromatic Spirits of Ammonia in a tea-spoonful of water may be given every ten minutes until four or five doses shall have been taken. This is for a child of about two years of age. As improvement becomes marked, the domestic remedy consisting of equal parts of

honey or molasses, added to as much vinegar, with a small fragment of butter added, every little while, is a useful thing, in teaspoonful doses.

Croup is known as membranous and spasmodic. Experienced physicians assert that the latter is by far the most common. There is often a relation existing between the severity of the attack and the amount of disturbance to the digestive tract by the presence of *undigested* food. Sometimes it is nuts or candy, given because the child did not seem well. As it gets older and able to get these things in larger quantity, such an ill-kept child ceases getting the Croup, and gets Convulsions. The stomach of a child susceptible to the croup can not be too carefully guarded, especially if it is suffering from what is popularly known as a "cold."

CONVULSIONS IN CHILDREN,

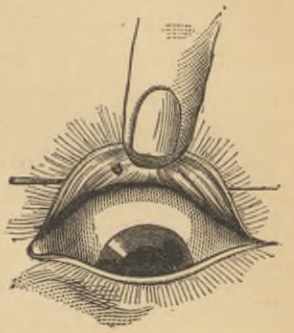
Sometimes called "fits," often result from undigested food in the stomach or bowels. The first thing to be done is to put the child in a bath of warm water, and some persons like to put some ground mustard in the water. In the course of a few minutes—which seems much longer to the mother and friends—the spasm relaxes enough to permit an emetic to be given, to dislodge what may be in the stomach. The Syrup of Ipecac, as directed under "Croup," is as good as any thing else for the purpose.

Sometimes these convulsions are one of the symptoms of Scarlet-fever, Measles, or other disease of the kind. (See Convulsions, p. 71.)

FOREIGN BODIES IN THE EYE.

Particles of cinder, dust, or fragments of metal, often get into the eye, and cause a good deal of trouble. Sometimes they are dislodged, and washed out by the extra secretion of tears brought about by the irritation produced by the body. Sometimes this process does not give relief, and it is necessary to resort to some process of extraction. A popular, and often useful plan is to take

hold of the lashes of the upper lid, separate it from the eyeball, so that the lashes of the lower lid will slip up in the space, acting as a brush to the inner surface of the upper eyelid. This, of course, can not remove any thing, as a rule, from the eyeball. A better way is the usual one of holding a knitting-needle over the upper lid, close to and just under the edge of the orbit, then, holding it firmly, seize the lashes of that lid by the fingers of the disengaged hand, and gently turn the lid upward and backward over the needle, or substitute used. Movement of the eyeball by the sufferer, in a strong light, usually reveals the presence of the intruding body, so that by means of a corner of a silk or cambric handkerchief, it can be detached and removed.



Should the foreign body be *imbedded* in the mucous membrane covering the eyeball or the eyelid (conjunctiva), a steady hand and a sharp-pointed instrument will usually lift it out.

The foreign body often can not be seen, but the person assures us that he *feels* it. Often he does not really feel the *presence* of the body, as much as the roughness (really a wound) left by it. In such a case, or even if the body has been seen and removed, a soothing application to the injury is as useful as the same thing applied to a wound of the hand. Take a spoon or cup, heat it, and pour in a few drops of Laudanum. It will soon become dense and jelly-like. A few drops of water added will dissolve this gummy material, and the liquid thus formed may be applied by the finger to the "inside of the eye," as they say. The Laudanum is Opium dissolved in Alcohol. The Alcohol is somewhat irritating, but is easily *evaporated* by the gentle heat, leaving an Extract of Opium, which is dissolved in the water afterward added.

The comfort derived from this simple and always accessible pre-

paration, after injury to the eye by a foreign body getting into it, is of the most satisfactory kind. In no case use any of the popular "Eye Waters" or "Salves."

Not an uncommon accident is a fragment of lime in the eye. The delicacy of the organ, and the activity of this powerful Alkali, require all that is to be done to be done at once. Do not waste time by attempting to *pick* it out, but *neutralize* the alkali by a few drops of Vinegar (which is dilute Acetic Acid) in a little water. A few drops of Lemon Juice, in a little water, will answer just as well; if introduced, like the vinegar, into contact with the lime. Even when done rapidly, the ulceration caused by the Alkali will be some days in disappearing. In all cases where lime has entered the eye, even when these things have been used, no time should be lost in going to a Surgeon.

FOREIGN BODIES IN NOSTRILS AND EAR.

The curious disposition of children to insert foreign bodies, as grains of coffee, corn, peas, pebbles, etc., up the nostrils, and into the ear, is too well know to be more than alluded to. If the body is *soft*, it absorbs moisture from adjacent parts, becomes *swollen*, and more difficult to remove. If the body is *hard*, the irritation and *inflammation* set up by it in contiguous parts in a short time materially increases the difficulties of removal. Hence the *sooner* these substances are removed, the easier it is to do so.

Foreign Body up the Nostril.

If the foreign body is up the nostril, the child should be made to take a full inspiration ("a full breath"), then closing the other nostril with the finger, and the mouth with the hand, the air of the lungs, in escaping through the nostril closed to a degree by the foreign body, assisted by a sharp blow from the palm of the hand to the back, will often expel the substance.

If it will not escape in this way, and it is near the opening of the nostril, compression by the fingers, just above, will prevent it

getting further up, and it can be hooked out with the bent end of a wire or bodkin. Should these measures not remove the foreign body, the child should at once be taken to a Surgeon.

Foreign Bodies in the Ear.

Foreign bodies in the ear are more troublesome to deal with. No effort to remove them with a *probe*, or any thing of the kind, should be made by *any* one, except a professional man, for fear of *permanent injury* to the ear. The head of the child, face downward, should be held firmly between the knees, and with a Mattson's or Davidson Syringe a stream of tepid water should be injected into the ear. The nozzle of the syringe should not be introduced into the *cavity*, as its presence may *prevent* the dropping out of the desired body after the water has been forced past and beyond it.

Should this means not succeed, consult a Surgeon without delay.

Insects sometimes get into the ear. The best way of getting them out is to hold the head of the person with the disabled ear upward, and fill the cavity with sweet-oil or glycerine. It drowns the animal, by closing up its breathing pores, and in a short time it floats to the surface of the fluid used. The tube of the ear is somewhat curved, and when straightened somewhat by catching hold of the upper tip, and gently pulling it upward toward the crown of the head, the liquid flows in more readily.

BLEEDING FROM THE NOSE.

Bleeding from the nose is sometimes troublesome, but not often fatal. Professional assistance can usually be had, and if not, the remedies and appliances to be used, can not be properly described here. The most important thing is not to disturb the forming clot involving and closing the little ruptured vessels, by blowing the nose.

SPITTING OF BLOOD

Often proceeds from the back of the throat, having trickled down and brought up by the movement of coughing. If the blood comes from the lungs, it is suggestive of trouble there, but not always so in young people, especially in young women. The amount of blood lost is rarely in itself fatal. As salt is always given in such cases, it has acquired a good deal of popular confidence for arresting the loss of blood. It and fragments of ice may be given.

POISON-VINE ERUPTION.

Several varieties of the Rhus, popularly known as the Swamp Sumach or Poison-Sumach, Poison-Vine, and Poison-Oak, when brought in contact with the skin of many persons, produce itching, redness, a sense of burning, tumefaction, and even vesication. Sometimes the swelling is so great as to disguise the features. Persons coming within the influence of even the emanations from different species of the Rhus experience the same symptoms. The poisonous effects are usually observed shortly after exposure, and begin to decline within a week.

Weak alkaline solutions—say a tea-spoonful of common baking soda to a quart of water, or even lime-water, kept to the part by dipping pieces of linen in them, are useful in allaying the inflammation. Laudanum added relieves the pain. Weakened-down Lead-Water is also recommended. Cream from milk is perhaps as useful as any thing else.

FROST BITE.

Exposure to the cold, of severe degree, often leaves the fingers and toes, nose, ears, and lips, more or less frozen. This condition, short of absolute *death* of the part, is termed Frost Bite. It will be observed that the portions of the body just enumerated are those most exposed, in area, to the influence of the cold, and are furthest situated from the heart; and it will, perhaps be un-

necessary to remark that persons who are *debilitated* are more apt to suffer with the same amount of exposure than the *robust*.

When the circulation of any part begins to succumb to the influence of the cold, it becomes puffy, blueish, and smarting. This is because the blood moves more slowly than natural through the vessels exposed near the surface. Soon this blueness disappears, and the part becomes pallid, as if the influence of the cold had contracted the vessels to an extent incompatible with the passage of blood through them. The *pain* at this point ceases; indeed, until he meets a friend, he often does not know of his mishap. At this stage, the injury has become so great that, unless proper means are taken to restore circulation, complete *death* of the part ensues, and in due time sloughs away, and is detached from the line of living tissue.

What takes place in a *part* of the body, known as Frost Bite, may take place in the *whole* of it, which is known as "Frozen to Death." The blood of the extremities being gradually forced from them, under the continued subjection to the cold, is forced inward upon the larger blood-vessels, heart, lungs, and brain. There is increasing difficulty in breathing, owing to the engorged state of the chest, and, what would always be remembered by one so exposed to cold, an *unconquerable desire to sleep*. To sleep *then* is to die. If the person exhibits such a symptom, he must, by all means, be kept constantly moving.

Treatment.

Persons exposed like those just described must be treated promptly, and with one thing never lost sight of. That is, keep the frozen person away from the heat. A person taken up insensible, or approaching it, from exposure to the cold, should be taken into a *cold* room, his clothing removed, and thoroughly rubbed with snow, or cloths wrung out with ice-water. The friction to every part of the body, particularly the extremities, must be continued for some time, until signs of returning animation appear.

When the frozen limbs show signs of life, the person should be carefully dried; put in a cold bed in a cold room; Artificial Respiration used until the natural is established; then brandy given, also ginger-tea and beef-tea. Usually, by this time medical advice will have been secured to direct further treatment. Should it not, do not forget that the patient is to be brought by degrees into rather warmer air; and lest in some *part* there might still be defective circulation, the person should be kept away from exposure to the heat of the fire.

Milder degrees of the same condition, as suspension of life in the ear, nose, finger, or toe, from exposure to cold, must be treated with the same general directions in view. The part should be kept away from the heat, and rubbed with handfuls of snow, or towels dipped in cold water, until circulation appears re-established. Exposure of the part to the heat before, we may say, it has been almost *rebuilt*, is apt to be followed by *sloughing*.

CHILBLAIN,

As the name implies, is when the circulation of the part has become chilled—*disturbed*, not destroyed. It is generally attended with much itching, tingling, and smarting, and is usually found in the toes, outside edge of the feet, just where the toe emerges, or in the heel. Sometimes, in persons of debilitated state of health, the hands suffer. These symptoms are particularly annoying just after lying down in bed, owing to the exposure to the heated air formed and retained between the bed-clothing by the body.

The most useful thing for these annoying symptoms, and a condition which often extends into ulceration and sloughing, is to keep away from the fire, and every night, before retiring, to bathe the feet in cold water, or rub them with *snow*. They should then be well dried with a soft towel. After this, the application of the ordinary Compound Resin Ointment of the apothecaries is often of use in stimulating the circulation through the part. The efficiency of this ointment for this special purpose can be increased by

asking the apothecary to add to an ounce of it a couple of drachms of the Oil of Turpentine. It may be remarked, that persons who suffer in winter from cold feet are often benefited to a surprising degree by bathing them at night, before retiring, in *cold* water. Such persons should always keep their feet away from the fire.

CONVULSIONS.

Convulsions, or "fits," as they are often called, are a frequent cause of alarm in the streets, or at public assemblages. In the decided majority of instances, the convulsions may be safely presumed as Epileptic; so, unless otherwise specified, the remarks here made apply to that form. Ordinary *fainting* may be confounded with it; but here the face is pale, the person perfectly still, and there is no perceptible breathing. Besides, in fainting there are no *convulsive* movements.

Often the Epileptic seizure is ushered in with a peculiar *sharp cry*, as the person falls over. It does not always occur, but when it *does* there can be no doubt, if it is a convulsion at all, that it is Epileptic. There is frothing of the mouth, sometimes tinged with blood from the tongue or a fold of the lips having been caught between the teeth at the moment the spasm commenced in the muscles of the jaws. Sometimes there are general convulsive movements of the whole body; often of parts of it only. At first the face is pale, but usually, in the course of a few moments, it becomes livid, except around the mouth, which often continues pale, in strong contrast with the color of the rest of the face. As a general rule, it may be said that the convulsive feature of attack does not last much longer than four or five minutes, although to bystanders the time naturally seems longer. Then the person opens his eyes with a certain degree of intelligence, or revives enough to speak; and, as will be said, it is at this point of the attack that most must be done. Sometimes there is nothing beyond it, and the individual gets up, hurriedly puts on his hat, and walks off, apparently the least concerned of any body about.

If this happy termination does not take place, this brief semi-conscious interval gives way to a *heavy stupor*, varying in duration from thirty minutes to three or even six hours.

In Epileptic Convulsions, there is usually nothing to be done. Ignorant people on such occasions are apt, upon the general plea, "if you do not know what to do, do something," to insist upon "opening the hands," as the phrase is, saying that the patient will be better as soon as they can do it. The truth is, they can not do it until the patient is better. All interference of this kind is *hurtful*, and no good can come of it. All rude efforts aggravate the trouble, perhaps, by exhausting still further the muscular strength of the patient.

All that can be done is to keep the person from injuring himself or hurting others during the violent convulsive movements, by removing him to some clear space where there is nothing to strike against. Do not attempt even to hold the limbs, but loosen every thing about the throat and chest.

Treatment.

Wait a few minutes for the convulsive movements to cease, and the semi-conscious state to appear. As said above, it will soon be seen. Then, if the person is a stranger, get his *name* and *residence*, if possible, with such other knowledge as may be useful. In the mean while, keep the crowd away. This is a very important measure of assistance in convulsions, as in every other emergency. By this is not meant so that people can not bend over the victim, but that a *perfectly* free space of at least two feet on each side should be kept, with none in it but the one or two immediately assisting him.

Thirty drops of the Aromatic Spirits of Ammonia, in a teaspoonful of water, may be given the patient, as it is thought by many physicians to lighten and shorten the later stupid stage. The spasmodic condition of the muscles of the jaws can usually be overcome enough, with a little gentle dexterity, to permit it to

be got into the mouth with the assistance of another spoon or a piece of smooth stick. After getting the liquid into the mouth, press down the base of the tongue, and the mixture will readily run down the throat. As much of it will necessarily be lost during the operation, double the quantity may be prepared for use. If more than the thirty drops should be given, no trouble from it need be feared.

If the name and residence have been secured, as it often can, at the interval alluded to, the friends of the person can be advised. If not, he should be taken to some place of security until consciousness returns.

Persons liable to Epileptic Convulsions should *never* be permitted to go from the house without a strip containing the name, residence, and disease, attached inside of the coat, where it will at once be seen upon unbuttoning the coat over the chest. A reference on it to a memorandum in some pocket containing a suggestion as to the duration of the attack, useful remedy, if any, in assisting restoration, would often materially add to the comfort and advantage of the afflicted person.

Other Convulsions are Apoplectic. These are not common, in comparison with others. As a rule, little can be done by bystanders, further than loosening every thing about the neck. This should be done in all Convulsions.

The Convulsions known as Hysterical are usually found in young women who are not very strong. Until assistance comes, act as directed in Epileptic Convulsions. The distinction between them can not be expressed, to a useful extent, to unprofessional persons.

RHEUMATISM AND NEURALGIA.

Persons susceptible to Rheumatism or Neuralgia are often liable to an attack, which as completely disables them as a broken bone. When Rheumatism is here spoken of, it does not mean Inflammatory

Rheumatism, but the other troubles with similar symptoms and immediate results, but possibly of a different origin.

A person constitutionally disposed, or who has acquired Rheumatism, can never be too careful of himself. Every thing like exposure of the surface of the body, especially the soles of the feet, to currents of cold air, or to cold surfaces, must be avoided. Warm suits of inside flannel, with plenty of buttons, should be put on early and taken off late. The predisposed often favor an attack by allowing garments of muslin or linen, when moist with perspiration, to dry upon the skin. The quiet chill, sometimes evident, from the rapid evaporation, can be avoided, and with it, what it leads to; by wearing flannel next to the skin all the year round. Many people known to the writer have been remarkably benefited by wearing suits of buckskin undercloth-ing over their muslin inside shirts and drawers. Not only invalids suffering from Rheumatism, but debilitated persons, and known as the somewhat aged, have been relieved to a surprising degree of distressing wandering pains and other like symptoms, by hoarding the heat of the body by such suits.* Heavy soles to the boots, which may even be warmed inside before putting on, should be used. It may here be remarked that, in changing the boots, during the day, for another pair, it is often better to keep on the wet ones if they are *warm* than to chill the moist feet with a pair that are dry, but *cold*. These are little things, but very important to people who dislike to be sick.

The digestion is often poor in persons suffering with what is known as Neuralgic Rheumatism, and improves on attention to preserving the heat of the body.

Every thing said here about Rheumatism applies to general as well as local Neuralgia. The pain of Neuralgia has been said by a celebrated German physician to be the "prayer of the nerve for healthy blood."

* They can be had of most furnishing-stores.

CHOLERA.

In the early spring of almost every year, a visit of this epidemic is predicted from some source, and every few years cases enough occur to justify the sagacity involved. The general nature of the malady even is unknown, and the treatment wholly empirical. One thing can be asserted without dispute, and that is, want of cleanliness, overcrowding and bad water, not only invite the malady, but at the same time increase its fatality. Where cholera is to be feared, the strictest attention should be paid each of these favoring causes. All, except the latter, may be evident to the senses, but often there is no known means to ordinary persons of detecting the latter. Cholera and other epidemics quickly and effectually solve the problem of overcrowding.

Water of *surface* origin, never mind how far down the bottom of the well; or likely to be contaminated with sewer or kindred emanations, should be carefully avoided. If nothing better can be done, the water from melted Northern ice can be used for drinking purposes. If this is not to be had, ordinary water can be boiled under cover, for a few moments, to destroy the animal and vegetable features. "Filtering" water does not necessarily "purify" it in the popular sense, but merely strains out particles too big to pass. What is left often is the dangerous element. Heat destroys that, and with the exception of a little "flatness" to the taste, the water is quite palatable. In the absence of something better in traveling, water can be thus prepared for drinking by heating in a cup over the flame of gas or a lamp.

Nothing likely to invite or force the blood to the mucous membrane must be permitted. Hence, all indigestible articles, or of difficult digestion, must be avoided. Meals, after fatigue, unless of easy digestion, must be avoided, and especial care should be paid the *late* meal of the day, when at all times there is less strength than earlier. Articles of any kind, even although tolerated by the stomach in *robust* health, may prove irritating in warm

weather, when Cholera prevails. The usual debility of late summer, especially if the nights are cool, permits exposure while sleeping, to bring about congestion of the bowels and relief as a diarrhœa; just as the debility of late winter, under the influence of exposure, favors congestion of the lungs and relief to the mucous membrane there as expectoration.

When an epidemic exists, all *related* affections assume the general features of the prominent disease; and it is noticed that when Cholera exists, the most trifling irregularity, in a greater or less degree, assumes the well-known symptoms of that disorder—showing, it is said, the prevalence in the blood, perhaps of every body, of a fractional part of the requirement of that poison necessary to constitute a *pronounced* case of the malady. What is wanting, *indiscretion* can provide.

The treatment really should begin with the slightest appearance of a relaxed condition of the bowels. With this there must be a studious avoidance of every thing known to increase it. The general disposition seen during the epidemic, to this state of things, is known as "Choleraine," and a slight neglect will lead to an attack of Cholera. A tea-spoonful of Paregoric, with ten drops of the Tincture of Ginger ("essence of ginger" may answer), can be taken by an adult, every hour or so, until relief is felt.

The attack is ushered in with symptoms more or less like the ordinary diarrhœa. They soon become more urgent, and in a short time follow cramps and profuse evacuations of "rice-water" liquid. The entire watery portion of the blood seems to be rapidly passing off in this shape, leaving the blood viscid, darker in color, and lessened in quantity. The changed circulating fluid gives the skin, particularly of the face, quite a dark color, and naturally enough, under the circumstances, a shriveled look. As should be expected also, the skin and the entire body seem quite cold.

The latter symptoms, together, give what is known as "collapse," and the person probably dies, from the blood circulating so

slowly that the necessary purification for the demands of the body does not take place in the lungs.

Medicines of the aromatic and pungent character, combined with others containing Opium, are usually given. There are many popular things of the kind. The following combination is as useful as any:

Aromatic Sulphuric Acid, } each, 30 drops.
Tincture of Capsicum, }
Tincture of Opium, } each 1 fluid dram.
Tincture of Camphor, }
Tincture of Ginger, 2 fluid drams.
Compound Tincture of Cardamom, 10 fluid drams. Mix.

A tea-spoonful in a table-spoonful of water, every hour, two hours, or three hours, until the patient seems better. Or it might be given every half or every quarter of an hour.*

As might be expected, under the circumstances, absorption of medicines or food takes place slowly, and no surprise need be felt if immediate improvement does not at once take place during the attack.

No time should be lost in an attack, in trying to arrest the evident tendency of the blood to seek the bowel, by diverting it outward by applications of *heat* in various forms. Hot flannels, vessels of hot water, with stimulating applications, diligently used to the body and limbs, and friction by the hands, moving them from the extremities toward the heart, should not be omitted.

There is great thirst, owing to the rapid abstraction of the water from the system, and small pieces of ice and little water may be given every little while.

Cholera is not a contagious disease, nor is it near as fatal as generally believed. Many die, it is true, but because so many are attacked. As long as there is any life, there is hope in this affec-

* This mixture can be made by any apothecary, or compounded from the usual medicines kept on hand by most families. It keeps well, is not impaired by age, nor disagreeable to the taste, and is compact in bulk. As a prudential measure, it might be placed in a hand-satchel in traveling; where a change in the water brings on attacks of diarrhœa.

tion, and people who have been considered dead have revived and lived. During the prevalence of an epidemic of this disease, especially in the case of strangers, the final steps preceding interment should never be taken without the most positive proof that death has really taken place.

CHOLERA MORBUS.

The symptoms of this attack are so much like Cholera, as often to suggest the epidemic. There are violent movements in the muscular coats of the entire intestinal canal, giving rise to great pain; expulsion of the contents of the stomach, known as vomiting; and of the contents of the bowels, known as diarrhœa. The cause usually can be traced back to an excess of ordinary food, or the use of articles incapable of digestion in the condition of the system usually found toward the end of summer. Drinking freely of water, by *further* weakening digestion, materially aids it.

Cholera Morbus is a natural process, and tends to relieve itself as soon as every thing in the canal shall have passed away, and the tract has had an opportunity of recovering from the special exertion. Paregoric, Ginger, and such things are to be used. Indeed, the treatment named for Cholera is safe and useful. Care will *prevent* an attack.

DIARRHŒA.

For the practical purpose of this little treatise, it may be said that ordinary Diarrhœa of warm weather is a milder effort, than in Cholera Morbus, of the digestive tract to get rid of irritating substances, and may be treated in the same way.

DYSENTERY.

This is often epidemic, and quite fatal. In ordinary cases, the symptoms are that of a severe Diarrhœa, with griping and straining. In a general way, it may be stated that this *straining*, after each evacuation, is the distinctive symptom between Dysentery and Diarrhœa; showing that the large bowel, or rather the extreme

portion of it, has become irritated and inflamed. An injection of twenty-five drops of Laudanum in a little thin-cooked starch, every few minutes, will often relieve this very distressing symptom. What is better, as a matter of convenience, is a one-grain Opium suppository as frequently. The prescription given under "Cholera," or its equivalent, may be given as there directed.

TO CHECK VOMITING.

If due to mere *irritability* of the stomach or nervous system, the Aromatic Spirits of Ammonia, in twenty-drop doses in ice-water, every few minutes, iced Mineral-water, iced Champagne, thirty-drop doses of brandy, every few minutes, a mustard-plaster, cayenne-pepper plaster, broken ice in a bladder to the stomach, or opposite, over the spine, are all useful. The last often succeeds where other things fail. A common tumbler with fragments of paper dipped in Alcohol or Cologne, and ignited, to act as a "cup," used to the pit of the stomach, is likewise useful.

Sometimes the vomiting is a proper effort to get something out of the stomach that ought not to be there. If this is known to be the case, *assist* it with a solution of salt and water, or pulverized Ipecacuanha.

ERUPTIVE FEVERS.

Under this head are several distinct affections, but with several general features in common up to a certain point. They are all infectious and contagious—that is, by absorption of tainted emanations from the affected person through the air, and by direct contact. From the time of absorption of the poison into the system, a period of incubation exists, then constitutional disturbance of the system, ending in the appearance of a distinctive eruption. This runs a well-defined and natural course, which can not be cut short.

The *natural* tendency of them all is to run a favorable course, but sometimes there is a peculiar condition of the blood of the people of the community inviting the disease to an unfavorable end. Often, again, an individual peculiarity does the same, and it

can be seen that a person prepared by these two things, especially if living in bad air and on poor food, is not at all well off in the presence of an attack. The distinguishing feature of this class of affections appears to be the eruption ; so they are presented for purposes of comparison :

	Period of incubation and latency, from	Appearance after commencement of evident constitutional disturbance.
Scarlet fever,	4 to 8 days.	18 to 24 hours.
Measles,	7 to 8 "	72 hours.
Small-pox,	8 to 14 "	48

Scarlet Fever.

Scarlet Fever (called Scarlatina by physicians, which is not, as some people think, from the termination of the word, a mild case of the disease) appears with the symptoms common to what are known as the other eruptive diseases, Measles, Small-pox, Chicken-pox, and Erysipelas. Few children live to the age of sixteen months without having had all the general symptoms, and the case turning out only a "cold."

There appear more or less headache, symptoms of oppression and weakness, as if the strength were gone, flashes of heat and shivering—sometimes the latter can be called the chill found in the whole class of eruptive diseases. In from eighteen to twenty-four hours, an eruption appears over the skin, of a bright scarlet color, not crimson; much the color of a boiled lobster.

Pressure of the finger to one spot, leaves a white point or stripe, remaining for some moments after removal of the force. It is often difficult to tell Scarlet Fever and Measles from each other. Between them are the following points of resemblance:

IN SCARLET FEVER.

The eruption is a bright scarlet.
Appears on the second day.
The eruption does not seem raised to touch.
Blotches of uniform tint.
Disappear on pressure.

No mucous discharges from eyes and nostrils.
No sneezing nor sensibility to light.
No hacking cough.

MEASLES.

The eruption is a cherry red, or crimson color.
Appears on third or fourth day of disturbance.
Seems elevated above surrounding surface of skin.
Arranged in irregular or crescentic masses.
Does not disappear, leaving white spot.
Face swollen, discharges from eyes and nostrils.
Sneezing, hides eyes from the bright light.
Frequent hacking cough.

Besides attacking the external skin, the scarlet-fever poison appears to be precipitated also upon the mucous membrane of the throat, especially about the mass of secreting depressions there, known as the tonsils. Measles does not. In "sore throat," which is an inflammatory activity in the same parts, without the specific poison under notice, much the same appearance presents to the uneducated eye. And if there should be a "cold" affecting the general system, enough general symptoms often occur, to suggest during the prevalence of the disease in a neighborhood, the feared malady, but the absence of the described *eruption* decides the case.

In the course of a few days, the inflamed skin comes off in scraps and shreds. The under skin is naturally quite tender and sensitive to the cold air; and the physician never fails to impress upon the attendant the danger likely to occur from it. While plenty of the purest air must be kept in the room, it had better pass through an adjacent chamber to deprive it of the "draughty" character. After the new skin shall have become complete in structure, and the broken-down condition of the blood common to this as well as the other eruptive diseases, shall have been noticed, these precautions may be relaxed.

Until the arrival of a physician, warm, acidulated drinks, as lemonade, may be given, and the other popularly esteemed things done for "bringing out the rash." *Sponging* the parched and

inflamed skin with a soft sponge, well wrung out in cold water, is not only grateful, but useful to the patient.

As no person ever thinks of attending a case of scarlet fever without professional advice, nothing will be said about the treatment. It may be added, however, that the poison alters the character of the blood in such a way as to give the kidneys a great deal of trouble for a time; so care must be taken to prevent chilling of the surface of the body in any way by forcing the blood inward upon these already overtaxed organs. The liquid which can not be excreted (thrown out) by the kidneys oozes out into the vacant spaces of the body, and is retained there under the name of dropsy.

The scarlet-fever poison, as we may term it, not only attacks the skin and visible mucous membrane of the throat, but extends to the unseen extensions of it to the large mass of communicating cavities back in the head, above the roof of the mouth, where the throat and nostrils meet. The inflammation travels along the canal (eustachian tube) on each side leading from the throat to the inside ear, leading to such a mechanical derangement of the parts as to damage the hearing. For obvious reasons, the worst of it is that any thing like special prevention is out of the reach of the medical attendant.

Scarlet fever is highly contagious, and the room of the patient should have all hanging articles and unnecessary pieces of furniture removed to prevent adhesion and preservation of the germs of the disease.

Measles.

Measles is ushered in with much the same general symptoms as scarlet fever. The points of difference between the two affections have been pointed out. In measles, the rash appears rather in *blotches*, which can be seen to be made up of little irregular, crescent-shaped crimson spots, unlike the *uniform* scarlet distribution of the eruption of scarlet fever. The eyes and nostrils discharge

mucus, there is sneezing, a cough, and a dislike to light, not seen in Scarlet Fever.

The treatment consists in preventing exposure until removal and restoration of the skin to its natural duties. Sometimes the blood does not seem to readily return to its normal character, and the health remains impaired. This is often the case where the general health was not good before the attack. The chest symptoms point out a tendency, upon slight provocation, for the lungs to become troubled with catarrh and kindred disorders, unless due care is taken.

Warm teas of Saffron, and the garden herbs, are usually given as domestic remedies to "keep out the rash," and often this is all the treatment the child gets.

Small-Pox.

The general symptoms of small-pox are more violent than in either of the named affections. The fever, and especially the pain in the small of the back, are strongly marked. There is thought to be a general relation between the urgency of these symptoms and the amount of eruption that should appear. In the early stage, it is not always an easy matter to tell by the sight alone the eruption of Small-pox from that of Measles. The rash of Measles offers no special *resistance* to the touch, while in Small-pox it seems *rough*, as if a layer of minute mustard-seed were scattered under the skin. Later, the minute red pimples become marked at the apex by a pearly point, changing still later to a pustule with a central black point, giving an optical appearance of depression in the centre.

The appearance of the eruption should be favored by careful attendance and a free use of warm drinks. "Pitting," as it is called, can often be prevented to a considerable degree, but the tendency to use the nails to the face, at certain late stages, almost neutralizes the best efforts of the physician, unless the nurse gives close attention to the patient.

Small-pox is not to be cured, but to be prevented. There is no

doubt as to the reliability of Vaccination to do this. If it does not *prevent* the disease altogether, as it does in most people, the attack is so modified that death almost never takes place. If the vaccination has "run out," of course the person is little better off than if he never had been protected. As there is no uniformity among people about this, each person probably should have vaccination attempted, every few years—say, five or six. If protected by the previous attempt, it will not "take," and if partially protected, the effort probably completes it. The virus from revaccination, even if it "takes," should never be relied upon for other people, when that from a first vaccination from small children can be had. The appearance of an epidemic, like that just passed through, was due to a feeling of general security upon the subject permitting an accumulation of material on hand adapted for an attack. That a few people in this large community are opposed to Vaccination, on "conscientious scruples," is no argument whatever against its usefulness.

The writer believes, from ample observation, that the greatest care is taken by physicians in avoiding *possible* sources of error in selecting crusts for use. It is not thought that diseases can be transmitted in that way, although the practice among physicians very properly is to act as if they might. While the writer has seen eruptions appear after Vaccination, he has seen the same after a cut; and in a large experience, in connection with public institutions, he has never seen a case of transmission of disease by it, nor does he personally know a physician whose opinion in other matters is of value, who has.

Well-asserted cases doubtless exist, but they are not more respectably vouched for, than the statements made when Vaccination was first introduced to the public by Dr. Jenner, that horns from the head and hoofs from the hands, had followed the efforts of that very useful man.

Varioloid, or the disease modified by Vaccination, is contagious to a very susceptible person; and some persons are so susceptible

that frequent Vaccination does not always secure exemption from exposure to even a small amount of the emanation.

MALARIA.

Malaria is an intangible and almost undefinable product of heat, moisture, and decomposing vegetable matter, which, when absorbed into the blood in sufficient quantities, gives rise to certain well-known symptoms termed intermittent—that is, at certain calculable, recurring periods, more or less fever occurs, with more or less chilliness. Instead of both or either of these sensations, it is another, as pain in some part of the body.

In the United States, wherever heat and moisture are able to decompose vegetable matter in a certain manner, Malaria is found. In summer, it is not prevalent, probably because the fresh life of such matter successfully resists the peculiar decomposition. Later, in the early autumn, before the killing frosts, it abounds. The temperature of evening and night favors its production, and as the vital powers are then somewhat weakened from the labors of the day, this is a favorable time for absorption into the body. A moderate temperature seems to invite its formation, perhaps by furnishing the necessary quota of moisture. The heat of the sun, or of a common fire, discourages the production, hence localities can be visited at midday, usually avoided at other times; and heating the air of a house by a fire, is a well-known precaution.

As vegetable matter and moisture exist in greater abundance near the ground, the lower strata of air soonest become saturated, and the air as high up as the second story often contains much less.

Malaria is about the same density of common air; so it travels for a certain distance entangled in the volume of atmosphere in which it originated. Hence, a gentle breeze carries it to spots where not produced. In passing a mile or so over an active stream or other non-producing surface, unless especially virulent, Malaria becomes so diluted or dispersed as to lead to the practical belief that this distance affords, under ordinary circumstances, a safeguard from its influence. Trees, or other solid substances, may

act as a screen to a spot; hence removal of such barriers often extends the influence of the poison. If generated about a dwelling, trees or close shrubbery, by keeping out the heat and light of the sun, may prevent the diffusion of the produced Malaria to a more desirable area. The upper stories of a house near the place of formation may escape, because elevated above the diseased layer of air, but a house on a bluff, a mile or so off, may suffer because the impregnated volume of air moving along the ground may be rolled up the elevation to the dwelling at the edge of the height; but passes above, by deflection, a dwelling a little further back.

In places where Malaria exists, or during the season, and under circumstances where it should be intelligently feared, rooms above the ground are furthest from active production, and these, with windows opening toward the same places, should be avoided. Doors and windows of houses possibly liable to the introduction of it should be closed before sunset, and kept shut during the entire night. The outside air is not pure air, but can be made free from this poison by passing through a room heated by a fire. The air from near the ground should be avoided, as the time suitable for production comes with the diminished heat between early sunset and high sunrise next morning.

As absorption by the blood, for simple reasons, is most active, the vessels are not distended with the products of recent digestion; there should be no unnecessary exposure in the morning until after a full breakfast. Surface water containing vegetable matter must be carefully avoided for drinking. All things favoring a reduction of the vital powers, invite the absorption of Malaria, and especially secure all its disadvantages.

A shallow swamp or damp ground produces the poison, while deeper water or a running stream need not, because deep water does not permit the growth of the required amount of vegetable matter. A newly drained area, exposing much succulent vegetable material in the bottom to the heat of the sun, leads to it; or turning up the surface earth to the same influence will do the

same. Malaria has been known to appear along a line of newly-thrown-up public works, executed toward the end of summer. The damming of a stream often introduces it into a neighborhood; and, what is worse, is the removal of such a work of long standing in hot weather. A heavy rain will often, for a short time, interrupt the production, and a frost heavy enough to destroy rank vegetation gives relief.

These are all degrees of susceptibility, both natural and acquired. Some need but little to feel its effects, others more. In temperate latitudes, the result is "fever and ague," at the Isthmus, the annually-recurring "Chagres fever," and on certain coasts the rapidly fatal "African fever." With typhoid poison in the army, the result was the disastrous "Chickahominy fever," and with the defective drainage of Havana and New-Orleans, "yellow fever." In all these, malaria is an active and hurtful auxiliary.

The poison rapidly exerts a destructive action, of no brief duration, upon the corpuscles and other prominent features of the blood. The blood is prepared by a previous absorption for a subsequent one at another season. Under this acquired susceptibility, a fraction only of the *original* quantity is necessary to induce an attack of intermittent fever—a quantity which might not prove observably hurtful to an ordinary person. In the South, a person is spoken of as "acclimated," a term originally used, perhaps, with grim humor, to refer to an individual not quite killed by it.

Where business or other things will not permit the observance of all necessary precautions in localities where Malaria should be feared, Quinine and its related salts act as an antidote. Like other antidotes elsewhere spoken of, the amount must bear a relation to the amount of poison to be neutralized. The antidote can not undo what has already been done—that is done by nature, in the absence of more of the poison, under the direction of a physician.

One of the first observable symptoms of malarial poisons is a

sense of slight chilliness, preceded by "yawning" and "stretching" at a certain part of the day. With it is a sense of ill-defined debility and indisposition to mental exertion. These symptoms are often more evident, for obvious reasons, to a friend than the victim. The Sulphate of Quinine in two-grain doses, on arising and retiring, should be used as a precautionary measure. Sulphate of Cinchonia and the Sulphate of Cinchonidia, salts left in extracting the earlier discovered Quinia from the Cinchona ("Peruvian") bark, in somewhat larger doses—say one half—are quite as useful as the much more expensive Sulphate of Quinia.

When there is a complete interval between the paroxysms, the attack is known as intermittent fever, "chills," or "fever and ague;" where there is only a remission in the symptoms, it is Remittent fever. After an attack of either, especially the former, it is almost necessary to restore the blood by tonics and such things, and then, during the entire season of malarial production, one of the named anti-periodics must be used every seven or fourteen days to neutralize the peculiar tendency to recur at such periods.

POISONS.

Under this term, people are inclined to place only those things which, if taken internally, produce death. Physicians, however, consider it merely a *relative* term, and call any thing a Poison that does more harm than good to the body. A little of a good thing may be useful, but, beyond the point of usefulness, may be injurious. An exaggerated injury, from the same cause, may well be termed a poison. There is not a single poison in the entire list which, in proper quantities, and under favorable circumstances, may not be used with advantage to the human body; and, on the other hand, there is scarcely a single thing in ordinary use, which if indulged in beyond the requirements of the body, or its ability to properly dispose of it, may not be followed by symptoms of derangement of the economy; and, in the above qualified sense, is not miscalled, if termed a Poison.

In the majority of cases, the poison is introduced into the body through the stomach. As soon as swallowed, a portion of the agent may commence *destructive* action upon the mouth, throat, or stomach, as in the case enumerated of Acids, Alkalies, Arsenic, Phosphorus, etc. While some substances act in this way, others pass from the stomach, through the mucous membrane, without injuring it, into the *blood*, and are carried by it to the brain and other portions of the nervous system, where the *really* injurious action begins, by overpowering them; so that the breathing and action of the heart are not kept up. To this class of poisons belong Alcohol, Aconite, Belladonna, Opium, Strychnia, etc.

A slight knowledge of the *mode* of action of a substance will, therefore, of itself suggest an antidote or remedy. If an Alkali has been taken, an Acid will *neutralize* it, converting it into a compound less hurtful. The new compound is, perhaps, *injurious*, but not so *active*, and can be removed from the stomach somewhat at leisure. On the other hand, if an Acid has been taken, an Alkali would naturally suggest itself as an antidote.

Some substances can not be *neutralized* by any convenient article; the poison is then to be *removed* from its lodging-place as soon as possible, and its effects *counteracted.*

If the agent does not act upon the stomach *directly*, but upon the brain and nervous system, reaching it *through* the blood, a recollection of what was said when certain gases have been inhaled will meet the case. Artificial respiration would, of course, be resorted to. This should continue until enough of the poison in the blood has been eliminated (thrown out) by the natural processes constantly going on *in* the body, until the brain and nervous system are able to resume one of their old duties, of attending to the respiration and circulation of the blood.

As few persons have the necessary knowledge of the different poisons, each of these substances will be spoken of somewhat in detail, and alphabetically arranged, so that, in case of need, im-

mediate reference can be made to the particular substance supposed to have been taken.

Before saying any thing further, it should never be lost sight of, that the substance swallowed as a poison must be considered as three parts: the portion of that taken which has *already* had an opportunity of acting upon the *mucous membrane* (lining) of the throat and stomach, if the poison acts in that way, or which has already passed from the stomach into the *blood*, if the poison acts in the other way; and the portion of the poison in the stomach *yet* to be disposed of.

It is the latter portion, perhaps, in most instances, we are called upon to first deal with; and the means employed is, to evacuate the stomach with the least possible loss of time. This is done with the stomach-pump and by emetics.

Stomach-Pump.

No directions for poisons are complete without reference to this piece of apparatus. With people who know nothing about the matter, it is very popular. The writer knows of but one physician among all his acquaintances who professes to keep one, and unless this particular instrument is different from all other complicated instruments rarely used, he does not believe the owner of it could get it to work in an emergency, if he wished. Not a single apothecary, as far as he knows, keeps one; and the writer does not know, among all his intelligent acquaintances, a single non-professional person who could use a stomach-pump with success if he had a dozen of them at his command. A handful of salt and a tumbler of water can always be had; and any body can mix a heaping teaspoonful of ground mustard with a cup of water, and get a person to swallow it. Either, swallowed, will empty the stomach; a "stomach-pump" will do no more.

As has probably been observed, the *simplest* things, and those most likely of all others to be had everywhere, are the ones only spoken of in this pamphlet. The same purpose carried out at this

point, leads us to say nothing now about the stomach-pump; and, for the same reason, it possibly will not be referred to again.

EMETICS.

For the purpose of rapidly emptying the stomach, in the decided majority of cases, before the arrival of a physician, and after it too, there is nothing like an Emetic. The easiest had, also, is usually the best. There are few places where these things can not be had—*Ground Mustard*, *Common Salt*, and *Warm Water*.

Ground Mustard.—Take a table-spoonful, mix with a tumbler of water to about the consistence of milk. Give the person one fourth of it at once. Then follow with a cup of warm water. In about a minute, give the person the same quantity again, followed by the warm water. If vomiting does not take place, continue giving until it does, letting a minute or so pass between each dose. Plentiful draughts of tepid water materially *assist* the action of the emetic, and the free use of it should, therefore, not be omitted. Mustard is not only useful as an emetic, easily found, and as readily given as any thing else, but it is *stimulating* in character. This feature gives it a peculiar value in most cases where an emetic is demanded, for there is often, with the necessity for its use, a stimulant needed. The amount derived from Mustard is not always enough ; sometimes it is ; but when not, so much has been contributed.

Common Salt is even easier had than ground mustard, and is as certain in action. It is given, a teacup of water with as much salt dissolved as the water will hold, every minute or so, until vomiting occurs.

Warm water, given cup after cup, is a safe emetic; but as the duplicate above-mentioned articles are so easily had, it is rarely relied on alone for the purpose. Usually it is given to assist the action of the others, on the principle, perhaps, that a distended stomach is often more easily emptied than one with little in it. After vomiting has occurred, frequent draughts of warm water are

often given to cleanse out the stomach. In many instances, for this purpose, warm milk, gum-arabic water, flour and water, the white of an egg in a teacup of tepid water, and such substances, are given instead, with the expectation that their gummy, viscid properties fit them to entangle and detach particles of the poison adherent to the mucous membrane (lining) of the stomach. Besides, they are soothing to the perhaps irritated condition of the parts.

TICKLING THE INSIDE OF THE THROAT by the finger, or with the tip of a feather, in many instances, alone will induce vomiting. Usually, after an emetic has been given, this is used to hasten its action.

SULPHATE OF ZINC is another valuable emetic, often found in private-houses. As much as will lie heaped up on a common two-cent piece is twenty grains, which is a dose, when dissolved in water. This quantity should be given at a single draught, followed by a cup of tepid water, and repeated every three minutes until three or four doses have been taken, or vomiting occurs. If there is none in the house, send to the nearest apothecary for sixty grains of the Sulphate of Zinc ("White Vitriol"). Empty the package containing this quantity into half a pint of tepid water. Stir rapidly with a stick, and it will soon dissolve. One third of this half-pint should contain, of course, twenty grains of the sixty put in, and that quantity should be given at a single draught, followed, as all emetics should be, by d aughts of tepid water. In a few minutes repeat, as directed about Mustard, unless profuse vomiting takes place.

PULVERIZED IPECACUANHA is another valuable emetic, particularly for children. It can be had of any apothecary by a messenger. Sixty grains (one drachm) of it may be requested. It is a ground root, and, as would be expected, does not *dissolve* in water, but mixes with it, like ground Mustard. One third of the sixty grains, which is twenty grains (as much in bulk as will heap up a two-cent piece) may be given, mixed with a small teacup of tepid water, followed by a draught of tepid water. In a few moments,

if vomiting does not occur, give another third, as you gave the first, to be followed in sixty seconds more by the last.

A good deal of trouble is often experienced in getting the person to *swallow*. This may be due to insensibility, fright, or stubbornness. The thumb of each hand may be slipped in outside and close against the teeth, along the line of junction, until the spot is reached behind where there are no teeth. Then through that vacant space slip the tips of the thumbs in between the jaws, when a separation can be readily effected. The thumbs should be kept there, for the patient can not bite the attendant while his fingers are in such a position, and the handle of a strong iron or silver spoon, or piece of smooth stick, thrust back far enough to forcibly depress the tongue. The liquid can then be poured down the throat, if the person is lying on his back. At first it would fill up the space at the base of the tongue, but a little more depression of the tongue by the leverage given by the spoon or stick will cause it to run down the throat. There need be no fear of the fluid getting into the windpipe, for a very sensitive valve over the entrance of the trachea (windpipe) amply protects it.

The *first* vomiting, as said before, does not necessarily *clear* the stomach of its contents. Much of the poison may remain *adherent* to the mucous membrane, requiring frequent *washings*, as it were, for detachment and removal. After the first vomiting, there is usually little trouble in keeping it up, by simply giving plenty of tepid water. Warm water alone is often, as said above, an Emetic ; and when none of the mentioned things can be had, must be wholly relied upon for the purpose.

Before the action of an Emetic can begin, a portion of the poison usually escapes from the stomach into the contiguous bowel. No vomiting can affect it ; so, after the contents of the stomach have been removed by the action of the Emetic, it is always well, if the poison belongs to what is called, for convenience, the Mineral class (p. 83), to administer good quantities of milk, which, passing down, engages the activity of the poison. Flour and

water will answer, but what is better, perhaps, is the white of eggs, mixed with water.

Now, we will suppose all the *poison* has been *removed* by the above efforts from the stomach. The next thing is the removal of the *consequences* of the portion of the poison which has already commenced its work. If the mucous membrane has been injured, it should have rest from its usual work—digesting food—and be treated by suitable soothing applications, as barley water, gum-arabic water, and such things. This should follow where the poisoning is due to any of the articles embraced in the first class of substances treated of.

POISONING BY MUSHROOMS.

Persons not well acquainted with the differences between the poisonous and edible Mushrooms had better buy them of those who are, or go without. There are distinctions between them, but they are not of such a character as can be made evident in a place like this.

When poisoning from eating Mushrooms does take place, the contents of the stomach should at once be evacuated by an Emetic. (See page 91.) After vomiting has commenced, it should be promoted by draughts of warm water, barley water, but particularly by drinking copiously of warm milk and water, to which sugar has been added.

What has passed along into the bowels should be hurried out as fast as possible, by some cathartic, before further absorption into the blood can take place. Castor Oil might be peculiarly useful in such a case.

If there is much prostration of the strength, some easily-procured stimulant might be useful, as the Aromatic Spirit of Ammonia, or Brandy.

POISONOUS MEATS.

Eating meats of diseased animals is often followed by symptoms of a poisonous character. Animals in otherwise perfect health,

but which have been butchered and prepared for food after long and exhaustive confinement, are unfit for eating. Not only is the meat of such animals lacking in *nutritive* character, when compared with the meat of animals killed from the pasture without excitement, or after being kept until proper recovery from the effects of the journey to market, but it is much less savory, and shows a disposition to much more readily decompose. It might be here stated that it has been estimated by competent authorities, that between the two kinds of meat there is, in a commercial sense alone, as far as nutriment is concerned, a difference of nearly fifty per cent in favor of the meat of healthful animals, butchered after complete recovery from the excitement and fatigue of drive or carriage to market. The additional cost per pound of meat to cover the expenses of extra care and precaution before butchering, would amount to but a small fraction of the percentage named, leaving the rest of it a true profit to the consumer.

The eating of this overdriven meat, it is said, is often followed by symptoms of irritation of the stomach and bowels ; but they can, in the ordinary sense of the word, scarcely be said to be of a poisonous character, however much the use of them may temporarily derange the health.

POISONOUS FISH.

Several varieties of Fish, at *all* seasons of the year, are reputed to be poisonous. Of course, they should always be let alone. Should they have been eaten by accident, the best treatment is that given under the head of "Poisoning by Mushrooms," p. 94 .

Shell-fish, at certain seasons of the year, after spawning, are considered poisonous when eaten ; at least, they are unhealthy. This process of nature is known to be very exhausting; during which, or just afterward, the individual is so reduced in vitality as to be unable to resist ordinary tendency to decomposition.

Oysters in hot weather are often unwholesome, perhaps from the causes suggested ; or it may be that the collection of liquid

secretion between the shell and the contained animal, in hot weather, is in a state favorable to putrefaction upon slight exposure to the air ; and the disagreeable symptoms often said to arise after partaking of this fish as food is due to this as much as any thing else.

MINERAL POISONS.

ALKALIES, ALKALINE EARTHS, ACIDS, METALS, Etc.

Ammonia.

The ordinary Aqua Ammoniæ, sometimes known as "Hartshorn," acts on the mucous membrane of the stomach, as would naturally be expected after knowing its effect upon the mucous membrane of the nostrils. When swallowed, it acts as a rapid corrosive poison. Owing to its pungency, it can scarcely be given by mistake in a state of purity. With Olive Oil, it forms the common "Hartshorn Liniment," and has thus been given internally.

A violently-acting corrosive substance, like Ammonia, leaves no time for Emetics. It is an Alkali, and the common dilute Acid known as Vinegar will neutralize it. Lemon-juice also would answer the purpose.

Other concentrated alkalies, as Lime, Soda, and Potash, act in the same manner as Ammonia, and when taken internally must be combated in the same way, and with the same difficulties in view.

Mineral Acids.

The common Acids, Acetic, Muriatic, Nitric ("Aqua Fortis"), Sulphuric ("Oil of Vitriol"), are all *highly corrosive* in their action, unless largely diluted, and act with even greater rapidity when taken internally than when applied externally (see page 30). They are about as troublesome in this respect as concentrated Alkalies.

When taken, the Acid should be *neutralized*, as far as possible, by giving some harmless Alkali. Lime-water is usually about as convenient as any thing else for the purpose. Common Soap, from the Alkali it contains, might be given.

Antimony.

This metal is rarely accessible in its purity. One of its salts, as Tartar Emetic, or the Wine of Antimony (which is Tartar Emetic dissolved in Wine), is the usual source of the poison. Vomiting is one of the most distressing and prominent symptoms of poisoning by this substance. Assisted with copious draughts of tepid water, sugar and water, flaxseed water, much of the poison in the stomach may be gotten out. Another symptom is great prostration. If a small quantity only is known to have been swallowed, a teaspoonful of Paregoric in a little sweetened water may be divided into three portions, one of them being given every ten or fifteen minutes. It soothes the irritated and excited stomach.

The Antidote usually recommended is Nut-Galls, or Oak-Bark in powder. Half a dozen of the former, finely powdered, may be given, mixed with water. The active principle in each of these is what is called *Tannin*, now to be had of every Apothecary and Dyer. Ten grains of it (a teaspoonful—it is very light) in water will be equivalent to the Nut-Galls mentioned. A strong infusion of common *Green Tea* contains enough tannin to make it useful as an antidote. An insoluble, and perhaps inert, Tannate of Antimony is formed.

Arsenic.

In some places this is called "Ratsbane," and poisoning often occurs from it. The Yellow Sulphuret of Arsenic (Orpiment), the Red Sulphuret of Arsenic (Realgar), and the Arsenite of Copper (Paris Green), are used as paints, and have all been used internally with fatal effects. The latter, Paris Green, has lately been much used by farmers for destroying injurious insects among plants. All these sources of poisoning by Arsenic should be surrounded by every possible precaution to prevent them from being accidentally used.

Many "fly poisons" contain it, and what is used in medicine under the name of Fowler's Solution is a solution of Arsenic.

Arsenic acts as an irritant to the stomach and bowels, in many respects like Antimony and its preparations. As soon as it becomes known that Arsenic or any of its preparations has been swallowed in poisonous doses, the poison taken should be dislodged from the stomach, as far as possible, by vomiting (see "Emetics," page 91), assisted by the finger to the throat, or the feather part of a quill. Free drinking of Milk, White of Egg and Water, or Flour and Water, should be encouraged. Not only do these things encourage vomiting and tend to dilute the poison, but they offer something upon which the poison can expend its energy, to that extent saving the living tissue, and at the same time they tend to envelop the particles of the poison until the mass can be removed from the stomach.

The Antidote to Arsenic is the freshly-prepared *Hydrated Peroxide of Iron*. This can be had of any Apothecary in a few moments of time. It is quite harmless in character, and may be given in almost any quantity. The iron, in this particular form, combines with the Arsenic, forming a temporarily harmless preparation. This newly-formed compound should not be permitted to remain and be digested, but must be dislodged afterward by an Emetic, which the bulk of the antidote favors.

Another Oxide of Iron, closely allied to, and said to be a useful substitute for, the Hydrate Peroxide, can be made by almost any one in a few moments, if some Aqua Ammoniæ ("Hartshorn"), p. 96, and some of the common Muriated Tincture of Iron can be had. Both of these articles can be found in many houses, and if not there, in every Apothecary-shop, or the office of every country practitioner.

Take a glass tumbler, or a graduated measure, pour in three or four table-spoonfuls (quantity not of much importance) of Aqua Ammoniæ, and then a table-spoonful or more of the Muriated Tincture of Iron.

A thick, dark, reddish precipitate, like brick-dust, is at once seen in the mixed liquids, which may be increased in quantity by gently stirring with a broom-splint.

This precipitate is the Oxide sought, and must be separated from the liquid by spreading a fine handkerchief or closely woven piece of

muslin over a cup and pouring on the mixture. The liquid will run through, leaving the desired Oxide of Iron as a reddish-brown, jelly-like powder. To free it from any excess of either substance used in its formation, a half pint or so of tepid water should be poured on in a gentle stream to wash the precipitate. The washed precipitate is now ready for use.

A tea-spoonful of this powder may be given every few minutes.

Calcined Magnesia and Pulverized Charcoal have also been recommended as antidotes in poisoning by Arsenic, but of their value nothing can be said by the writer.

Baryta.

This substance, largely used to adulterate certain paints, is sometimes accidentally swallowed in poisonous doses.

The Antidote is Water, acidulated to about the strength of lemonade with *Sulphuric Acid*, which converts the Baryta into an insoluble compound, which must be dislodged from the stomach by an Emetic.

Bismuth.

Some of the preparations known as "Toilet Powder" are largely made up of this substance, and when swallowed are followed by poisonous symptoms. The first object in such a case is to secure prompt and thorough evacuation of the stomach by an *Emetic*, followed by copious draughts of Milk.

Copper.

The most common form of poison from this cause is through the careless use of utensils made from it. Most Acids form soluble salts with Copper; hence Acids should never be used for cooking purposes in copper vessels. Many of the ordinary vegetables and fruits contain enough to form poisonous salts with this metal. Even Sugar, from the ease with which solutions of it are changed into Acids, should be cautiously used in contact with copper. When Copper is mentioned, it must be understood to apply to Brass, and other alloys into which Copper enters as a necessary

component. Indeed, there is scarcely an excuse for the use of Copper or Brass as vessels any longer, owing to the superior advantages of similar vessels of Iron lined with porcelain, popularly known as "Enameled."

The stomach must at once be emptied by an *Emetic*, and copious draughts of Milk, or the White of Eggs mixed with Water. *Carbonate of Soda* (the ordinary Baking Soda of the kitchen may answer) is said to be an Antidote. As much as will lie heaped up on an ordinary nickel cent can be given every five minutes, in water, or in the other named liquids. *Iron Filings*, or the Ferrocyanide of Potassium (*Prussian Blue*), in tea-spoonful doses every three minutes, may be given.

Gold.

All preparations of Gold taken into the stomach act as the irritant poisons just described. The only difference in the treatment compared with that from poisoning by Copper is the Antidote. This is the *Sulphate of Iron* (Copperas, Green Vitriol). As much as will lie heaped up on a cent may be dissolved in water, and one third of the solution given every three or four minutes.

Iodine.

The common Tincture of Iodine, used for external application, is the usual form of this poison. There appears no antidote, in the usual acceptance of the term. *Starch*, in water, may be freely given until vomiting is secured by an *Emetic*.

Iron.

The form usually taken is a solution of the Sulphate of Iron (Copperas, Green Vitriol). Its action is, like most of the poisons heretofore described, an irritant poison to the mucous membrane (lining) of the stomach and bowels. The Antidote is Carbonate of Soda. (See remarks upon this, under "Copper," page 99.)

Lead.

The form from which poisoning by this substance usually takes place is the Acetate of Lead (Sugar of Lead). The Carbonate of Lead, the "White Lead" of the painters, and the Red Oxide ("Red Lead") are also sometimes swallowed in poisonous doses. They all act as *irritant poisons.*

The treatment of such cases consists in giving, as an Antidote, water acidulated to about the strength of Lemonade with *Sulphuric Acid* ("Oil of Vitriol").

Sulphate of Magnesia (Epsom Salts), or the *Sulphate of Soda* (Glauber's-Salt), in water, are also reputed antidotes. After the antidote has been given in poisoning by Lead, an *Emetic* should be given.

When Lead is taken for some time, in any of its soluble forms, in small doses, as when water has been kept in leaden vessels, or food kept or cooked in vessels "glazed" with lead, or the use of wines "sweetened" with the same metal, a peculiar train of symptoms slowly follows, known as "lead-poisoning," or "painters' colic." All such possible sources of the introduction of Lead into the system should be carefully avoided; and as soon as the effects of the absorption begin to be suspected, no time should be lost in consulting a physician.

Lime.

If accidentally administered, acts like Ammonia (p. 96).

Mercury.

The Bichloride of Mercury (Corrosive Sublimate), often used as a solution in houses for destroying vermin about beds, is one of the most active poisons, when taken internally. The Red Oxide of Mercury (Red Precipitate) is another dangerous salt of the same metal. When swallowed, the *White of Eggs* should at once be given, and often repeated. In the absence of this form of albumen, common Milk can be used, or wheat Flour beaten up with Water.

These Salts of Mercury not only irritate the stomach, but so rapidly inflame and destroy it that some writers discourage the use of Emetics. If one can be given, however, before the poison has had time to produce these extreme results, there can be no objection to its use. The continued administration of the mentioned Antidotes is soon followed, as a rule, by free vomiting.

There appears to be little excuse for keeping such Poisons about the house as Corrosive Sublimate or Red Precipitate. They are merely poor substitutes for good housekeeping with some people.

Potash.

The Caustic Potash, in the form of common Lye, or the Concentrated Lye, when swallowed, acts as other Alkalies of the same general character. (See Ammonia and Lime.)

Nitrate of Potash (Saltpetre), in large doses, say half an ounce or more, taken internally, is followed by poisonous symptoms. There is pain, with heat in the stomach, vomiting, and purging of blood, great prostration, and other symptoms denoting the action of an *irritant poison.*

No antidote is known. The treatment consists in rapidly evacuating the contents of the stomach by an *Emetic*, and the free administration of *mucilaginous drinks*, with some Paregoric every little while, to allay the pain and irritation of the inflamed parts.

Phosphorus.

This is not often taken in a state of purity, perhaps. It is the active ingredient of most of the popular "Exterminators" for rats and other vermin. Children have been known to eat it with fatal results. They have also eaten the ends of common matches with similar consequences. Phosphorus acts as an irritant poison, inflaming the mucous membrane with which it comes in contact.

There is no antidote known. Some *Calcined Magnesia* may be given, in plenty of water, to be rapidly followed by an emetic, and then an abundance of mucilaginous drinks.

Tin.

Several compounds of this substance are used by Dyers, and have been used as poisons. They all act as irritant poisons. The treatment consists in copious draughts of Milk, White of Eggs in Water, and Flour and Water. Practically, the treatment advised under the head of "Copper" may be followed.

Zinc.

The Sulphate of Zinc (White Vitriol) may be termed poisonous in very large doses, were it not for the fact, constantly turned to good use, that it at once causes vomiting, and is brought up before damage can be done. Hence it is regarded as one of our most valuable Emetics.

Soda.

The same things are to be said about this Alkali as about Potash, Ammonia, and Lime. The rapid action of these substances upon the parts with which they come in contact leaves little to be done with much confidence.

Silver.

The chief source of this poison is the Nitrate of Silver (Lunar Caustic), either solid or in solution. Its action as a "Caustic" is well known, and it is in this manner that it acts upon the throat, stomach, etc., when taken internally, in solid stick or in solution.

Nitrate of Silver (Lunar Caustic) is the base of the numerous popular "hair dyes," and under this form has been accidentally and criminally taken.

The Antidote for the Salts of Silver is *Common Salt*, which immediately decomposes and destroys its activity. The rapidity and completeness with which this is done is seen in the well-known domestic precaution of preventing solutions of Silver employed as indelible Ink from staining, by immediately, while the spot is moist, touching it with salt and water.

Alcohol.

Alcohol itself, or in the form of Brandy, Gin, Rum, Whisky, taken in large quantities, is followed by symptoms of a violent poisonous character, and if relief is not at once had, death often ensues. It is not an unfrequent occurrence for the press to report instances where children have swallowed Alcohol left accessible to their reach, and have died in consequence.

When quantities have been taken sufficiently large to be followed by alarming symptoms, the contents of the stomach should be evacuated without delay, by tickling the throat with a feather or the tip of the finger, by an Emetic, such as Ground Mustard and Water, Pulverized Ipecacuanha, or Sulphate of Zinc; or the stomach-pump may be used, if convenient. The vomiting should be assisted by copious draughts of warm water, or other things of the kind.

The Alcohol in the stomach having thus been disposed of, the portion which passed from the stomach into the blood, and was carried to the Brain and the rest of the Nervous System, where its poisonous action is being exerted, should next claim the attention, if the symptoms appear to demand it. The action of Alcohol and its preparations upon the Brain and Nervous System is seen under the common name of Intoxication. This may exist as mere stupor, or the Brain and the Nervous System may be so completely overcome by the presence of such a quantity of the poison in the blood that the action of these parts upon the muscular movements of the Chest and the Heart is no longer kept up, and death ensues from Asphyxia, as described under that head.

VEGETABLE POISONS.

Most of the class of Poisons termed Vegetable act as Narcotics or as Acro-Narcotics. With some modifications, which will be mentioned in place, the treatment of *all* cases of *Narcotic* poisoning is essentially the same; and a similar statement may be made

in reference to the treatment of all cases of *Acro-Narcotic Poisoning*. Hence, in speaking of the Vegetable Poison standing first in the alphabetical arrangement of these substances, the directions have been given under two heads: the nature of the Acrid or *irritating* symptoms and the treatment of the *Narcotic* symptoms. In speaking of the other poisons, in turn, to save space and avoid repetition, the reader will be directed, for details of treatment, to one of the substances, when directions are given in full.

Aconite.

Aconite is known under the names of "*Monkshood*" and "*Wolfsbane.*" When swallowed in an overdose, it is rapidly followed by symptoms known as acro-narcotic; in other words, irritating to the part, and narcotic to the Brain and Nervous System. The treatment naturally would consist in getting out of the stomach all the poison there not already absorbed into the blood. In this Acro-Narcotic Poison we have two reasons in view for such a course: first, to avoid, as much as possible, the *irritating* features of the poison to the mucous membrane (skin lining the stomach and approaches), and, secondly, to prevent further *absorption* into the blood and narcotization of the Brain and Nervous System.

The contents of the stomach are removed by tickling the throat and base of the tongue by the finger or a feather. An *Emetic* (page 91) of Mustard and Water, Pulverized Ipecacuanha, or Sulphate of Zinc, Flaxseed Tea, Gum-Arabic Water, Sugar and Water, Milk, White of Egg, or things of this general character, should be freely given at the same time to *protect* the mucous membrane of the stomach from the irritating feature of the poison.

There is nothing known to neutralize or destroy the poison in the blood thus acting through the Brain and Nervous System upon these important organs of breathing and circulation, so the efforts for relief must consist in keeping up the respiration by artificial breathing (page 10) until the kidneys, skin, and other organs have had time to eliminate (throw out) the aconite, and so little re-

mains in the blood as to no longer seriously interfere with breathing and circulation. We shall, therefore, refer the reader to "Asphyxia from Carbonic Acid Gas" (page 14), which is said to act in the same manner upon the human body. Also see "Opium" (page 109).

Belladonna.

Belladonna, or "*Deadly Nightshade*," has been introduced into our gardens as an ornamental flower, and poisoning sometimes occurs from eating the berries or leaves. Solutions of the active principles of this plant are used under various forms as an application to the eye or brow, for certain purposes, by the surgeon, and should never be left where they can be swallowed by mistake.

Belladonna acts as a Narcotic poison, like Opium in many respects, only there is dilatation, to a marked degree, of the pupil of the eye, and a peculiar redness or suffusion of the face, which are not seen in poisoning by Opium. This duskiness of the face is the symptom first observed by the physician. To discriminate between the two, it may be remarked, that Stramonium (Thorn Apple, Jimson Weed) gives results closely resembling Belladonna. Both of these substances, Belladonna and Stramonium, are attended, when swallowed in large doses, with a peculiar dryness of the throat and mouth, delirium, not accompanied at first with *stupor*, like Opium, but with violent *gestures*, often violent laughter, and a peculiar disposition to pick in the air, or at the clothing, for imaginary objects.

Treatment.—The poison in the stomach must be immediately gotten out by an Emetic (page 91), and the treatment under the head of "Narcotics," in the preceding page, followed out as seems required.

Bryony.

The root of this plant, when swallowed in sufficient quantity, acts as an acrid, highly irritating poison. It is quite a common plant in Europe, but less seen in the United States.

If taken in poisonous quantities, *empty the stomach* as soon as

possible; and, as in the case of *all* highly *irritating* poisons, this should be followed by free drinking of Milk, Flaxseed Tea, White of Egg and Water, Sugar and Water, Gum-Arabic Water, and similar things.

Camphor.

When taken in large doses, Camphor acts as a narcotic poison. The contents of the stomach, in such cases, should be evacuated by an Emetic (page 91), followed by draughts of warm water, Flaxseed-Tea, Gum-Arabic Water, Milk, and similar substances. The strong odor of Camphor in the breath and perspiration, in case of poisoning, with narcotic symptoms, would naturally point out the peculiar agent employed.

Draughts of strong *Coffee*, it would seem, might be as useful in the case of narcotic poisoning from Camphor as in the case of narcotic poisoning by Opium and other substances of this class. (See "Opium," page 109.)

Conium ("Hemlock").

This well-known plant is an active poison, when taken internally in sufficient quantity. It is supposed to be the narcotic used by the Greeks, and other nations, to destroy the life of condemned criminals. Socrates and Phocion, it will be remembered, were compelled by the Athenians to drink a decoction of it.

Its action is that of a *narcotic*, and the treatment consists in getting out of the stomach, as soon as possible, by an *Emetic* (page 91), all the vegetable there, and then counteracting the effects of that which has been *absorbed* into the blood, and tends to overpower the brain and nervous system.

See remarks on "Alcohol" (page 104), and "Opium," (page 109).

Digitalis ("Foxglove").

This beautiful plant of the garden, cultivated in this country for its flower, and used, in proper quantities, as a valuable medicine, is a poison of the *narcotic* class, with a disposition to over-

come the portion of the nervous system controlling the action of the *heart*.

The same *treatment* should be pursued, when Digitalis has been taken in poisonous quantities, as recommended for other narcotics. The peculiar tendency to stop the action of the heart should be specially combated by giving twenty or thirty drops of Aromatic Spirits of Ammonia every three or four minutes in a table-spoonful of water, or some other stimulant.

Dulcamara ("Bitter Sweet," "Woody Nightshade").

This well-known plant belongs to the narcotic class of poisons, with symptoms like those of Belladonna and Stramonium.

The treatment is about the same as heretofore spoken of since we began our remarks upon the Vegetable Poisons. See "Belladonna," (page 106).

Hyoscyamus ("Henbane").

This vegetable, made use of in medicine, if taken internally in improper quantities, acts as a narcotic poison, like others of the same natural order (Solanaceæ), as Belladonna, Dulcamara, and Stramonium.

As the treatment of a poison depends upon the action of the agent, we would naturally treat poisoning by Hyoscyamus as by other articles acting the same way. See "Belladonna," page 106; "Stramonium," page 115.

Lobelia ("Indian Tobacco").

This vegetable is not now much used as a medicine by physicians, as the comparatively recent discoveries in chemistry have added substitutes to the list of drugs, without the peculiar disadvantages of this substance.

In poisonous quantities, Lobelia belongs to the class of acro-narcotics spoken of under the head of "Aconite" (page 105). Fortunately one of the symptoms following its use is vomiting. This should be encouraged by drinks of tepid water, Gum-Arabic

Water, etc.; and, if kept up until all the poison is rejected by the stomach, a favorable issue may be expected. Should vomiting not occur at *once*, as a symptom, enough of the poison may be absorbed into the blood to exert a fatal *narcotic* influence upon the brain and nervous system; or, perhaps, to speak more precisely, through these organs upon the movements of respiration and circulation of the blood.

Opium.

This substance, or the numerous preparations of it used in medicine, is one of the most frequent causes of poison a physician is called in to see. A fruitful source of mistake is that of confounding together of Laudanum and Paregoric. When the latter is supposed to have been given by the nurse, the mistake is not found out until it is often too late to be of material service in averting a fatal end. *Morphia*, the active principle of Opium, is often kept as a solution, in private houses, for domestic use.

Any of these preparations of Opium, in improper doses, are followed by symptoms of *narcotic* poisoning. Not only these, but many popular nostrums, as "Infant Cordials" and "Soothing Syrups" of various kinds, depend for their utility upon some preparation of Opium, and are hence often followed by symptoms of narcotic poisoning. None of these things should be used. If a child cries, it is usually because it feels *pain;* and, instead of making it so stupid with narcotics that it can not *feel* the pain, it is better to go to work and find out the *cause* of the pain, and remove it. There is some reason for the suspicion that, in many instances, where a modicum of the popular remedies of this class are not furnished by the mother to the nursery, the enterprise of the nurse, "rather than see the child suffer," secures it for the charge committed to her care, from a neighboring apothecary-shop.

Opium, its preparations, and the active principle of the drug, Morphia, all act in the same way, by absorption into the blood,

and distribution by it to the brain and nervous system. Through these organs, the movements of the chest and heart become more or less interfered with. In this respect, its action is essentially like that of Carbonic Acid Gas, Alcohol, and most of the vegetable poisons herein described, without, however, any acrid or *irritating* complication.

Treatment.—It is safe to say that at present there is no known Antidote to any of the narcotic poisons, using the word Antidote as understood by physicians. What is *in* the stomach must be taken out, to prevent further absorption, and what is in the blood must be worked out, under proper guidance, by the processes of nature constantly engaged with such products. If the breathing and circulation tend to cease, because of the inability of the brain and nervous system to temporarily discharge these duties, these essential movements must be taken charge of by a friend.

An active *Emetic*, like Ground Mustard, must be given at once, remembering that trouble may be found in getting it to *act*, owing to the diminished sensibility to its presence, from the local stupefying action of the Opium to the mucous membrane of the stomach. The action of the Mustard should be assisted by tickling the inside of the throat with the fingers or a feather.

Sulphate of Zinc, Salt and Water, Pulverized Ipecacuanha (page 92) may be given; in fact, any thing, to empty the stomach as soon as possible.

The narcotic effects upon the brain at the same time, as far as possible, must be attended to. If the *respiration* is yielding to the poison, that is, falling much below the standard of about twenty to the minute, it must be sustained by assistance. As directed under the head of "Asphyxia from Carbonic Acid Gas" (page 14), the exposed body of the patient should be *dashed* with cold water, not neglecting the head, face, and chest. After the cold water has been sufficiently used in this way, the body should be dried, removed to a dry spot, and hot applications made to the extremities and other parts. Ths is necessary, owing to the heat-

producing power of the body being impaired by the suspended or diminished respiration.

If the respiration is not *suspended*, but is going on at a *diminished* rate, say six or eight to the minute, artificial respiration is not required, unless the number of respiratory movements of the chest falls below that; but the other measures may be used. In addition to these, a strong *stimulant*, in the shape of twenty or thirty drops of Aromatic Spirits of Ammonia in a table-spoonful of water, may be given three or four times, at intervals of a couple or more minutes. It is better than brandy, or any thing alcoholic, because the mode of the action of brandy is much the same upon the brain as Opium, and it might be rather adding to instead of taking from the poison that is at work. The often referred to Aromatic Spirits of Ammonia will give the advantage without the suggested disadvantage. A few table-spoonfuls of *very* strong, freshly made *Coffee* is a useful thing to give in such cases.

Among measures to *keep in activity* the circulation and respiration, as well as to promote the elimination (casting out) from the blood of the poison acting as a narcotic, there are few things more useful than *muscular exercise*. If the circumstances permit it, this is often effected by a person getting on each side of the individual under the influence of the narcotic, supporting him under the arms, and walking up and down the floor with him. The writer saw a case where the person under the influence of this narcotic (Opium) was wholly unconscious, and with breathing not over six to the minute. A relay of persons walked him up and down a long room for three hours, a person walking behind to hold the head of the patient in a natural position over his shoulder. Occasionally he was stopped at a suitable place, the blanket around him removed for a moment, and he was dashed with cold water. The body was then rapidly dried, and the blanket in the mean while having been heated, was reapplied. Once the respiration became so feeble that he was placed on his back, and the artificial breathing (Silvester's method, page 8) used for some min-

utes. While this was being done by one person (a policeman in this case), under the directions of the physician, another individual caught hold of each ankle, bent the knee, pushed the knee upward until it touched the stomach, and then straightened out the entire leg. This was done several times a minute, and perhaps was as useful as walking the patient up and down the floor, besides not interfering in any way with other measures of relief. Indeed, there is some reason for thinking the action of the heart would be more favored by such muscular movements, with the patient on his back, than if the person was standing upright.

Whipping the body by a folded towel wrung out in cold water is of the greatest use is cases of narcotic poisoning.

In case medical assistance shall not have been secured, and the patient shows signs of improvement, in the shape of more frequent respirations, stronger pulse, and returning consciousness, many of these measures may be omitted as the apparent necessity disappears. In a short time, the patient will appear as a person who is soundly sleeping from the effects of a full dose of Opium or other narcotic; the quantity *beyond* that having been parted with by the blood. He may now be let alone, unless some return to the previous condition is noticed, when a dose or two of the strong and easily procured stimulant, Aromatic Spirits of Ammonia, may again be given him.

It must be recollected that a person who has been in such a state as to require all these artificial muscular movements is, practically, in about the condition, as far as strength is concerned, of a man who has run hurriedly several miles without resting. He, of course, has consumed all his available *strength*, and the sooner it is made up to him by beef-tea, and such things, the sooner he will be where he was before the narcotic was taken.

Oxalic Acid.

This substance is largely used in the arts, and in private households, for removing stains of iron from textures and surfaces,

which it does by combining with an otherwise insoluble salt of iron, and converting it into a soluble oxalate of iron, easily removable by water. From the strong resemblance Oxalic Acid bears to Epsom Salts, it has often been taken instead of the well-known purgative of that name. To avoid the possibility of such an accident, Oxalic Acid should be kept in another part of the house from where medicines are kept, and no precaution omitted, by label and other marking of the parcel, to make the difference between them as decided as possible. It is well to remember, also, that, wholly unlike Epsom Salts, the taste of Oxalic Acid, applied to the tip of the tongue, is quite *sour*.

When swallowed internally the activity of this poison admits of no delay. It belongs to the class of irritant poisons spoken of so often, and produces death, it is said, by destructive action on the mucous membrane (lining) of the throat, stomach, and bowels.

Time can scarcely be lost to give an Emetic; but something must be given to rapidly combine with it, and divert its activity from the parts mentioned. It has a strong affinity for Lime, forming with it a comparatively insoluble Oxalate of Lime; and for Magnesia, forming with it an insoluble Oxalate of Magnesia, which can be dislodged with less haste. A tea-spoonful of Lime from a whitewash-bucket or at the bottom of the bottle of Lime-Water, when made as directed in another place (page 132), mixed with a cup of water, might be given every few minutes, or some crushed Chalk (a Carbonate of Lime), or some Magnesia, may be given. All these things can easily be had, and not a moment need be lost in getting the person to swallow them. The common "Whiting," used for polishing glass, making cheap paint and putty, is essentially the same as prepared Chalk.

Scraping the ceiling or wall will not get the antidote if Plaster of Paris has been used instead of common lime, as is often the case. The often recommended mantel images of Plaster of Paris are likewise of as little use. Lime in the sulphate (Plaster of

Paris) is too firmly united to the Sulphuric Acid to give it up for Oxalic.

After the Oxalic Acid is supposed to have been neutralized, an emetic of ground mustard or pulverized ipecacuanha may be given.

Pulsatilla.

The eating of this plant, "Meadow Anemone," or parts of it, has been followed by symptoms of acro-narcotic poisoning. The plant is so active at times that when applied externally, irritation to the parts touched is felt. When poisoning results from swallowing it, the course of treatment recommended under "Aconite" (page 105) may be followed.

Sanguinaria ("Blood-Root"),

Taken internally in an overdose, acts as acro-narcotic poison. See "Aconite" (page 105).

Savine.

This is an active irritating poison, inflaming the stomach and bowels. When thus taken, vomiting, by tickling the throat with the finger or a feather, should be at once induced. The mucous membrane (lining) of the bowels should be protected from the irritating action of what has escaped beyond the stomach before it could be emptied by vomiting, by drinking large quantities of water or milk, with good quantities of Gum-Arabic dissolved in it. If the *Oil* of Savine, which is the usual form of the substance when used with a criminal intent, has been taken, it might be well to take a dose of Castor Oil.

Spigelia.

The use of this plant, commonly called "Pink Root," as a destroyer of worms, was given, it is said, to the whites, by the Cherokee Indians, and has become very general throughout the entire country. It is given with a great deal of confidence and recklessness, and is often followed by symptoms of a narcotic character.

attended also with convulsive movements. When such poisonous symptoms follow its use, *vomiting* should be promoted, and kept up by frequent draughts of warm water. As in the case of other narcotics, a drink of strong coffee may be of service. Acidulated drinks, as water and vinegar, water with lemon-juice, are thought to be useful, and probably are, in favoring the elimination (throwing out) of the poison absorbed into the blood, by the action of the skin and kidneys, which they promote.

Stramonium,

Usually known as "Thorn Apple," or "Jimson Weed," belongs to the same natural order in botany as Belladonna, Dulcamara, and Hyoscyamus; and when taken internally, in improper quantities, is followed by *similar* general symptoms. Children often gather the seeds and eat them. A history of the case, the evidence of some of the seeds or capsules, the narcotic symptoms, with the peculiar duskiness of the face and dryness of the mouth and throat mentioned when speaking of Belladonna, are sufficient to point out the vegetable used. There is a decided disposition to laugh, and pick at imaginary objects, on the part of the person under its effects.

Treatment has been given under the head of "Belladonna" (page 106).

Strychnia.

This is the active principle of the Nux Vomica, or "Dog Button," as it is sometimes called, from the use often made of it. The action of this poison is so rapid that, like Prussic Acid, little can be done to delay death. This poison acts in a peculiar manner upon the nervous system, throwing the muscles of the body into *strong* convulsive movements. The convulsions from Strychnia are attended with one strongly-marked and peculiar feature. It is a disposition, during the convulsion, for the heels and the back of the head to meet (opisthotonos), under the influence of the violent muscular movements. Whenever *this* is seen, and if seen it

will surely be remembered, the coincidence between it and the use of Strychnia should be remembered.

The stomach should be evacuated with the least possible delay, if it is known the person has just taken the poison. If convulsions have occurred, and death taken place, it may be well to remember that death resulted from Asphyxia, the spasmodic action of the muscles attached to the ribs having prevented movements of respiration. Artificial breathing, in such a case, should be *tried*, with the hope that something might possibly be done to invite back the natural movements.

Tobacco.

To a person not accustomed to its effects, by beginning with small quantities, and persisting in its use, tobacco is an acro-narcotic poison, agreeing in its essential character with Aconite, and others of the same general class. The movements of the heart become so much interfered with that death may take place unless proper assistance is at once given. Fortunately, like Lobelia, it acts as an Emetic, and before enough can be absorbed into the blood from the stomach, the contents of that organ are rejected. Hence, when death has ensued from the direct use of Tobacco, we find that it was used as an injection, a form in which it should *never* be given.

Other Vegetable Poisons.

Besides those enumerated in the foregoing pages are many others, whose names even can not be here given. Most of them belong to the *Acro-narcotic* class, and may be treated as advised in speaking of those mentioned under that head. See "Aconite" (page 93).

SIGNS OF REAL DEATH.

Usually it is not a difficult matter to pronounce with confidence whether a person is really dead, or whether it is an instance of what is called suspended animation; but sometimes it becomes a question not easily determined, even with professional assistance.

There are few fears, perhaps, as widely and as universally entertained as the fear of being buried alive; and there is probably no apprehension which, after a careful and extended examination, has as little in fact to support it. Where it has become necessary, in some few reported instances, to examine the remains after burial, the change in position of the body from that in which it was supposed to have been at the moment of interment, is doubtless due in most instances to the formation and sudden escape of gases, the result of decomposition, from cavities of the body. Any one who has attended a funeral, and observed the movements necessarily given the casket in taking it from the house to the cemetery, must see how readily the cylindrical form given the corpse by the conventional manner of pinioning the arms to the chest, and the feet to each other, permits it to be influenced in carrying; and it is rather a matter of surprise that the expected position, flat on the back, is as often found as it is. Either of these explanations will account for the change of position sometimes seen after burial, without for an instant calling in the dreadful and unjustifiable supposition that burial had taken place before life was extinct.

A gentleman who for years past has given his attention to investigating every reported case of premature or near premature burial in this country, states that he has never found substantial truth in one of them. In the majority of instances, there were no such persons, or they had no knowledge even of the related circstances.

In many countries in Europe, where the remains of persons deceased are exposed under official inspection for some time after reported death, statistics of the most reliable character extending over an uninterrupted period of many years, do not reveal, among the hundreds of thousands thus placed, that one has ever afterward shown a sign of life.

While it is possible that a person might be supposed to be dead and yet not, the usual method practiced in cities by undertakers,

carefully and completely surrounding the body with ice, as soon as they can, is well calculated to do away with the possibility of being buried alive. It is not an unheard-of thing for the remains to be so packed within three hours after supposed death; and that, too, without any reason being apparent for the indecent haste, except the possible convenience of the men sent by the undertaker.

Under scarcely any circumstance should this be permitted, especially in the case of those who have died on the highways, at hotels, and other places, away from relatives and personal friends. During the prevalence of fatal epidemics, particularly of cholera, where there is fear of contagion, every known precaution should be taken to prevent even the most remote possibility of the thought ever afterward arising that undue haste occurred in placing the remains beyond friendly assistance in case it could have been of use.

Among the tests usually applied to a person supposed to be dead, is the absence of sensibility. While it is true that sensibility to punctures, pinches, blisters, and burns demonstrates that the person is not dead; the want of sensibility to such things only proves that the individual does not feel them; or feeling, is incapable of responding to them.

Another test is the absence of circulation as revealed by the action of the heart to the hand of a bystander; or the absence of the impulse of the blood by that organ to the artery at the wrist, properly known as the pulse. There is little real value in the absence of both of these signs. The heart may be acting feebly, or the attendant unable to detect the movement.

The cessation of breathing is also often relied upon. There may be no movement of the walls of the chest, as is often seen in persons just brought from the water, exposed to carbonic acid and other gases, who afterward revive without even assistance. Besides, the method employed for learning whether breathing takes place may be unreliable. A mirror held for the purpose near the

mouth, to collect the moisture of the breath, does not always reveal it even when there; nor is the force of the breath always strong enough to deflect the flame of a candle held near, nor to give movement to a wisp of cotton held near the lips.

It is sometimes thought that the person is dead when he is cold, and alive if he preserves his warmth. A moment's reflection will show how little reliability can be placed in these signs. For instance, the drowned are often and the frozen always cold; and both have been restored. It is said, too, that those suffocated by strangulation or inhalation of certain gases preserve their heat, for some time after undoubted death, as long even as twelve hours after unconsciousness has commenced.

The general appearance of the face, the softness, sinking, and relaxation of the countenance, and dimness of the eyes have all been considered, from the days of Hippocrates, as furnishing valuable signs of death. While of recognized value to the mind of the physician, they can not, of themselves, be *wholly* relied on for the purpose, but must be regarded, when properly interpreted, as only presumptive evidence of the possibility of near or complete death.

In this connection, it ought to be remarked that the commonly resorted-to test of suspected death, of exposing the eye to the light, is of much less value in establishing the fact of complete dissolution than is commonly imagined. Life may be present, but the eye as lacking in sensibility to light as other organs to their proper stimuli; besides, contraction of the pupil may be already so complete that more should not be expected.

One of the most reliable signs of death evident to ordinary observers, is the peculiar stiffness or rigidity of the body (*rigor mortis*), but as a sign closely resembling it is sometimes seen in life as well as in suspended animation, certain essential points of distinction between the two must be kept in mind to establish the difference between them.

If the contraction or rigidity of the muscles is due to their convulsive action, instead of being the stiffness of death alluded to

considerable difficulty will be found in changing the position of the limb, and after it has been done, there will be a constant disposition to revert to its former state. In death, however, the limb is apt to remain as last placed.

In the peculiar nervous condition known as Catalepsy, the tendency for the limb to remain as placed is likewise seen as it is in the *rigor mortis*, and in some cases of this disease, professional advice may be necessary to decide the difference between them.

When the body has been subjected to the influence of cold, as when the person is "frozen," a stiffness like that of death is found, but it affects not only the muscles different from the stiffness of death, but extends in like degree to the abdomen, breast, and other organs. Besides, when the position of a frozen member is changed, a slight cracking noise is made and felt, caused by the movements against each other of the atoms of ice contained in the part.

If from any cause the person supposed to be dead is cold and soft, while a certain degree of stiffness ought to be seen, interment should not take place, but might be postponed until a physician can make a satisfactory examination of the case.

It is well known that all *inanimate* bodies, whatever may be their nature or composition, under the influence of the law of the diffusion of heat, acquire the same temperature as other suitably exposed bodies about. *Animate* bodies, unless cold-blooded, on the other hand, keep nearly a fixed temperature of their own. Never mind how the inanimate body *feels* to the *hand*, a thermometer, properly applied, shows that it possesses about the same heat, and that is the heat of the air of the room; that is, of course, if the piece of furniture, clothing, etc., has been long enough exposed in the room.

A human body, if life no longer exists, is as inanimate as any thing else; and, after exposure to the currents of air of the room, should show by the thermometer, throughout its entire mass, a

uniform degree of heat, no greater than the bed on which it lies, or the table standing by.

This test, for obvious reasons, is not practicable unless the temperature of the room is considerably below the range of 98° and 105° Fahrenheit.

All authorities, however, agree upon the reliability of one symptom of death, and, it may safely be said, the only reliable one: it is a well-marked putrefaction.

By this is not meant the *appearance* of putrefaction, but the undoubted fact of it. In some forms of Dysentery, a peculiar cadaveric odor is present, but it does not by any means imply that death has taken place, nor even that it must. The same suggestive odor is seen when gangrene of a limb has occurred, or destructive ulceration is going on. Purple blotches of the skin, with other signs of decomposition, are occasionally met with, occurring with other supposed signs of death, without death really having taken place, or in fact a likelihood of it.

The putrefaction under consideration cannot well be detected by the unprofessional, but the question should always be submitted to the skill of a medical man. It usually makes its first appearance over the abdomen, close down toward the groin and extending upwards. At these and contiguous points the skin first turns a dusky yellow, soon merging into a greenish tint, more or less mottled, and in a short time becomes softened to the touch, with the evident of odor of decomposition. The color alone is not to be depended on, but the mentioned later stages, of what the color may be the beginning of, should positively decide the case.

APPENDIX.

In a number of instances, it has been found necessary to speak of a few articles of medicine usually kept on hand in private houses, factories, and places where accidents are likely to happen.* It is scarcely necessary to point out how great a risk is assumed in not keeping a little supply of such things on hand, ready for use at a moment's notice. Most prudent people do keep them, although physicians know of cases where an apothecary has been rung up of a cold night to supply ten cents' worth of paregoric for a sick child. There is scarcely any excuse for such effrontery. Often there is a disposition to purchase these domestic medicines wherever they are said to be kept, and at the lowest price. This should never be done with articles intended for internal use, as the education of the buyer does not permit him to judge of the purity, strength, or activity of the drug. They should invariably be bought of the most reliable apothecary or retail druggist, if in the city or large town; or if in the country, at the office of a reputable practitioner of medicine, who has made, or will guarantee the named essential features of the different articles.

What is left unused of prescriptions ordered by the physician, should not be preserved, as there is not one chance in a hundred that

* Wherever spoken of, reference is had to what are called the standard articles prepared according to the United States Pharmacopœia, a volume revised every ten years, containing the accurate standard for the regulation of the strength and purity of medicines used by the physicians of the United States, and everywhere recognized by them as an authority upon all matters therein contained. It bears as close a resemblance as practicable to similar works, of the same obligatory character, of Great Britain and the different countries of Europe. This is the reason why physicians write the names of medicines and directions for preparation in Latin, so that wherever presented, no doubt can arise, from comparison with the works, as to what the writer intended.

the same special combination will ever be required again ; unless it is some liniment, or constituent of one, which can be utilized. Besides, as a rule, medicines do not keep well ; and the more bottles of such things there are about the house, the greater the chance of a mistake in getting hold of one, when another is needed.

But a small quantity should be bought at once, for the reason just stated, that most of them undergo changes in character after being kept on hand some time. Each substance should be kept in a flint glass bottle with a closely fitting cork stopple ; or, what is better, a carefully fitted ground-glass stopple, as many medicines erode the delicate cork, permitting the escape of a valuable element or giving access of the air to the contents of the bottle. Each bottle should likewise be correctly and distinctly marked with a printed label ; and when the medicine is poured out, pour from the side of the neck opposite the label, so the last drop, if any, will not trickle down upon the label and deface it.

When not in immediate use, all medicines should be kept in a separate closet or other well-defined space, where nothing else is kept, unless the little appliances of domestic surgery. It should be wholly free from dampness, as moisture impairs or destroys the activity of most drugs, especially those in powder, if it can get access to them. If the closet can be kept under lock and key, so much the better. Light must be excluded, as it destroys many substances, as the Sweet Spirits of Nitre ; and injuriously modifies the character of the oil of turpentine. A low uniform temperature is likewise needed, otherwise the heat will vaporize the alcohol or ether of many preparations, and the supposed strength of the article may be dangerously interfered with. Besides this, heat destroys many medicines.

Syrups, or medicines containing sugar, when poured from a bottle, care should be taken to keep the neck at the cork free from the mixture. Independently of the neatness, the stopple and neck of the bottle should be wiped on each occasion of use, to prevent the collection and decomposition of the saccharine matter, as the character of the medicine may be modified by it.

Liniments for external use, in the majority of cases, and the same

as true of Lotions, depend for their usefulness upon articles not to be taken internally. They should be kept in a distinct corner by themselves, labeled "Poison," and as soon as used, returned to the spot they belong. Many of them, containing chloroform, ether, or other volatile substances, are apt to dislodge the stopple, and this element, perhaps the active one, rapidly evaporates. When ordered for immediate use, these substances can scarcely be preserved in their proper proportions to the other ingredients until consumed, even when an attempt is made to tie down the stopple.

Powders should be kept in tight metal boxes; or, what is better, wide-mouth bottles with closely fitting ground-glass stopples.

Ointments ("Salves") should never be kept in any quantity, or for any length of time. Unless purchased in large cities, at the retail shops, where large and rapid sales compel a constant renewal of stock, they are usually rancid. This is especially true of what is called "cold cream." A rancid ointment is unfit for use to a delicate part. It is quite as difficult, as a general thing, for an apothecary to keep ointments from becoming rancid, as it is for a housekeeper to preserve butter in its original freshness.

Pills kept for some time, particularly those containing certain articles, become so hard that they are about as soluble in the stomach as grains of coffee. This is especially true of sugar-coated pills. This defect can be overcome by inclosing the number to be taken in a piece of muslin and reducing them to fragments by a blow.*

* There are few observant physicians who will not say that these things are used much too often when not really necessary.

Many people take them because they are what they call "bilious," which, in nineteen cases out of twenty, and this is said thoughtfully, means that the person has eaten too much food; not diminished the consumption of heat-producing articles, as fatty matters, as the heated weather approached; or has taken food which did not digest properly, owing to its nature, the mode in which taken, or the condition of the stomach at the time. In such cases, absence from food until the material already there can have passed off, and the alimentary track restored, is all that is needed. A little thought afterward, with a little common forbearance, is all that is needed to keep from getting "bilious" again.

Another thing is to "purify the blood." But how do you know that it needs it?

Medicines to be taken internally are usually ordered by drops, tea-spoonful, dessert-spoonful, or table-spoonful; not because these measures of quantity are correct, but because they are convenient. Drops vary in size, according to the temperature of the liquid, the shape of the edge over which it is poured, and the specific gravity and general character of the substance poured. All other things being equal, drops of ether are, perhaps, not more than one third as large as a drop of syrup. However, the physician usually takes all these things into consideration when medicines are ordered, so if the directions as to the number of drops is followed, no danger need be apprehended from this source.

A Tea-spoonful means the quantity occupying the space occupied by forty-five drops of pure water. Some tea-spoons now the style hold much more than this; hence in every house should be kept a tea-spoon known, by exact measurement, to contain just a typical tea-spoonful, or forty-five drops of water of ordinary purity. With this correct standard, another can be found holding just twice as much, and this will be what is called, in measuring medicines, a **Dessert-spoonful.** This doubled, or four tea-spoonfuls, is the **Table-spoonful** of medicine, or half an ounce.

What is best of all, is the common **graduated measure,** as it is called, used by apothecaries and all who wish to accurately estimate quantities of liquid. Not only the technical characters should be cut on the glass, but the quantities written out in full in plain English. There is a kind in the market with the characters pressed on the glass instead of being etched, but some think them, as a rule, less accurate than the other kind. If a true one can not be had, take some

Read over what has just been said about "bilious" people, and see if there is not some suggestion there to meet the case.

Another thing often alleged is "constipation." Now there is often apparent reason in this. Physicians will say, however, that what is a necessity for one person twice a day, will not be for another twice a week; and one enjoys as good health as the other. If the reader has reached the age of forty years, and will think back over things, he will find things which were once a necessity have become useless; and things once not needed, can not now be dispensed with. Therefore, because things do not happen now as they once did, or happen now that once did not, remember there may be nothing wrong about it; at least, not enough to excuse the wrong of taking a lot of pills without consulting a physician as to whether they are really needed.

water and count out forty-five drops until a "tea-spoon" is found of the precise size to hold it.

One tea-spoonful = 1 dram = forty-five drops pure water.

One dessert-spoonful = 2 drams, or 2 tea-spoonfuls.

One table-spoonful = 4 drams = 4 tea-spoonfuls or 2 dessert-spoonfuls, and is also equal to one half of a fluid ounce. Two table-spoonfuls, of course, make one fluid ounce.

While speaking of certain articles of domestic medicine which should always be kept on hand, especially should several large and reliable apothecary-shops not be in the immediate neighborhood, there is one practice to be decidedly condemned.

For some reason or another, or perhaps more correctly to say for lack of reason, certain persons persist in keeping about the house a parcel of Arsenic, Corrosive Sublimate, and if particularly favored, a few grains of Strychnia. They are often purchased under the delusion that they are intended for "rats," or something else. Sometimes, even, they are carried around in the waistcoat-pocket, or kept on the mantel, or in a well-known conspicuous place on the clock, to be displayed and their merits dwelt upon in the most reckless manner whenever a listener can be found. The fondness for doing such things apparently belongs to the same order of mental obliquity that leads some innocent-minded people to keep dangerous firearms, largely loaded, constantly about the house; or with as little reason, a ferocious dog in the front yard. Independently of the danger of some one getting and taking such dangerous substances by accident, it should always be remembered that an unnecessary familiarity with such things is of no advantage to any one. While, perhaps, harmless in some hands, it should never be forgotten that often "the sight of means to do ill deeds, make deeds, ill done."

When it is necessary to get such things, tell the apothecary the use to be made of them, and ask him, as a precautionary measure, to add something to give offensive bulk to the poison without impairing its usefulness for the purpose intended.

Further, solutions of Corrosive Sublimate and Oxalic Salt should always be kept in a receptacle the appearance of which, alone, independent of the name of the substance and the word Poison and other

marks, will suggest unpleasant ideas, should the contents be used otherwise than legitimately intended.

Several of the commonly kept medicines have individual peculiarities not generally known, but it will be so readily seen that the value of the article depends upon them that they will therefore be briefly mentioned in detail.

Alcohol.—This is kept in most houses for various purposes. In a close bottle, it will keep for an indefinite length of time.

Aqua Ammoniæ (Water of Ammonia) "Hartshorn."—As the name implies, this is water, saturated, as the chemists say, with a known quantity of Ammonia, a substance, for practical purposes, existing in the form of a gas. The strength, of course, depends upon the quantity of the gas held by the water. As the Ammonia is readily driven from the water by moderate heat, and rapidly leaves it on exposure to the open air, it can be seen that the strength of the Aqua Ammoniæ, compared with the standard, even when purchased of the best dealers, may vary a great deal. Owing to the difficulty of keeping it, a small quantity only should be purchased at one time. As the ammonia rapidly corrodes the common cork, and finds an outlet for escape from the bottle, the liquid should be kept under a ground-glass stopple.

It is never used internally, but chiefly in combination with other substances, as a stimulating liniment. If the necessary articles are to be had, a useful Liniment, when there are no breaks in the skin, can be easily prepared by mixing equal quantities of Aqua Ammoniæ, Tincture of Opium (Laudanum), Oil of Turpentine, or Glycerine, or Tincture of Camphor. Any three of these will answer. No more need be mixed at a time than will last for a few applications.

This Ammonia, united with Carbonic Acid Gas, gives the Carbonate of Ammonia; which, coarsely bruised, and scented with various substances, constitutes the common smelling-salts, so much used by ladies as a nasal stimulant in fainting and hysteria.

Aromatic Spirits of Ammonia.—This is suitably prepared Aqua Ammoniæ, with other substances. No house should be without

this valuable article. If the supply can readily be replenished, no more than an ounce need be bought at once. The value of it as a medicine depends, of course, upon the useful agent in it, which is the Ammonia previously spoken of, so care should be taken to keep up a fresh supply, and take proper care of what you get. If, in an emergency, it can not be felt that the article is reliable, the dose may be increased.

Aromatic Spirits of Ammonia is what physicians call a diffusible stimulant, in many respects like Brandy, and in some instances better. The Ammonia in it is an Alkali; so it is also called an antacid, and given internally to neutralize a supposed excess of acid in the stomach.

As a stimulant, the dose is twenty drops in a tea-spoonful of cold water, every couple of minutes, until certain results sought are obtained.

Aromatic Sulphuric Acid.—Five or ten drops in a wine-glass of water is used internally. Like the acid of sour fruit, or pickles, this acid "sets the teeth on edge;" so immediately after using it, the mouth should be rinsed out with some water, with a little alkali in it—say the common baking soda. This will neutralize any particles of the acid adherent to the inside of the mouth.

Tincture of Arnica—"Arnica." This popular name is as incorrect as it would be to call Tincture of Opium (Laudanum) "Opium." It consists of the active principle of the flowers of the plant, suitably exhausted and kept in solution by Alcohol. It is useful as a Liniment by itself or mixed with other things; but perhaps of less value than popularly supposed. It has no more "healing" properties, when applied to wounds and bruises, than Laudanum, and is, in fact, not as soothing. As there is no necessity, unless to soothe pain, for using Laudanum for this purpose, there is none for pouring on Tincture of Arnica, as many simple-hearted people do.

Tincture of Arnica, internally, is *poisonous*, like Aconite (see Poisoning by Aconite, p. 105).

Tincture of Camphor.—This is Camphor dissolved in Alcohol (2 ounces of Camphor to a pint of Alcohol, U. S. P.)

Tincture of Capsicum.—A few drops of this in a little water is a pure stimulant— equal, in many respects, to brandy.

Tincture of Myrrh.—A tea-spoonful, with thirty drops of the Tincture of Capsicum, added to a couple of ounces of sage-tea, with as much Chlorate of Potash as will lie heaped upon a two-cent piece, is a good domestic gargle. The throat should first be cleansed by gargling it out with some warm water, or salt and water, then followed by the mixture.

Tincture of Opium—"Laudanum." This, as the name implies, is the active principle of Opium exhausted by alcohol. This valuable preparation should always be purchased of a most reliable apothecary. The Tincture of Opium sold in the rural stores often contains scarcely a trace of opium, and may, therefore, be said to be useless. An ounce is enough, as a rule, to keep on hand. If the stopper becomes loosened, from any cause, the Alcohol, of course, evaporates, which might occasion serious inconvenience, by increasing its strength beyond the officinal standard.

The dose of Opium is one grain, and twenty-five drops of the Tincture of Opium (Laudanum) contain this quantity. Hence, twenty-five drops is a dose for an average person in health.

Tincture of Rhubarb and Senna—"Warner's Gout Cordial" —is a useful cathartic for the weak, especially used in cold weather, when there is an instinctive repugnance to the alkaline class of such medicines as Epsom Salts, Seidlitz-powders, etc. From a tea-spoonful to a table-spoonful is a dose.

Camphorated Tincture of Opium—"Paregoric," "Paregoric Elixir." The name suggests its components to a degree; but it contains several other things, none of which interfere with the action of its prominent ingredient—Opium.

This should be kept as suggested for the Tincture of Opium (Laudanum).

A table-spoonful (which is half a fluid ounce, two dessert-spoonfuls, or four tea-spoonfuls, p. 127), contains one grain of Opium. Hence, for an adult a table-spoonful would be a dose ; but is rarely used by adults for producing sleep.

A tea-spoonful, therefore, contains one-fourth of a grain of Opium, and is equivalent to about six drops of the Tincture of Opium (Laudanum).

It is given to children, however, in preference to Laudanum, for producing sleep. Dose for an infant of one year of age is ten drops ; for a child of two years, twenty-five drops.

Camphorated Tincture of Soap, "Soap Liniment," is a well-known and valuable Liniment for ordinary domestic use.

Tincture of Ginger, "Essence of Ginger," is something that every body buys, but rarely has ; because the bottle it comes in is not suitable for keeping it. This tincture should be kept as carefully as the other tinctures named. It should be purchased of the apothecary, but in traveling, when needed, that made by Mr. Frederick Brown, of this city, and sold under the name of "Essence of Jamaica Ginger," can be used.

Castor Oil.—The juice of half a lemon squeezed into the dose of the warmed oil makes it more palatable, and it is said nearly doubles its activity.

Olive Oil—"Sweet-oil."—When given internally, the best, perfectly free from rancidity, should be used. One third of sweet-oil and two thirds of the Aromatic Syrup of Rhubarb, is a desirable combination for infants and small children.

For "hartshorn liniment," the commoner commercial oil may answer.

Oil of Turpentine.—It is said that unless one purchases Oil of Turpentine of the apothecary, he is apt to get something more or less adulterated with Benzine. The writer does not know this to be true, but he would suggest that the article should be bought where there can be no doubt of its purity. Owing to the action of light upon this

substance, it should be kept in a colored bottle, or a bottle pasted over with a piece of thick blue paper. In using it, keep away from flame.

Elixir of the Valerianate of Ammonia (Hubbell's).—Directions found on the bottles. If not, a tea-spoonful may be given every few minutes until relief is obtained.

Monsell's Solution.—This powerful styptic is sometimes very useful in stopping bleedings. It acts by direct contact, clotting the blood and plugging up the injured vessel to that extent; so, to get the benefit, great care must be observed in cleansing out the wound and applying the solution. If it is a superficial cut, a thin, small slip of linen, wet in it and applied to the wound, closes the vessels, and it may be left there, if there is no bleeding nor discharge of pus.

The mouth of the bottle and stopple must be kept free from the solution by wiping after using, or it causes the applied surfaces to gum so firmly that the stopple can not be withdrawn when necessary. A good way is to keep the dry salt of the Persulphite of Iron in a bottle; as much as will lie on a penny in a table-spoonful of water, will rapidly form the desired solution.

Lime-Water.—A large bottle of this easily-prepared compound should always be kept prepared for use. It is not only desirable as an antidote to many poisons, as Oxalic acid, but it is a valuable ant-acid, when such a thing is required.

To make it, take a piece of unslaked lime (never mind the *size*, because the water will only take up a certain quantity); put it into a perfectly clean bottle and fill the bottle up with *cold* water; keep the bottle corked, and in a cool, dark place, such as a cellar. In a few minutes it is ready for use, and the clear lime-water can be poured off whenever it is needed. When the water is exhausted, fill the bottle again. This may be done three or four times, after which some new lime must be used, as in the beginning.

Hoffmann's Anodyne.—The dose of this is a half tea-spoonful or more every few minutes.

Like the Sweet Spirits of Nitre, it should be kept in a colored bottle, or in one covered with thick blue paper.

Aromatic Syrup of Rhubarb.—Dose for an infant, a tea-spoonful. When given for costiveness, this quantity, with half as much of the best olive-oil ("sweet-oil") may be added with advantage.

Sweet Spirits of Nitre.—Half a tea-spoonful in water or lemonade is given every two or three hours in certain febrile states.

It should be protected from the light. See Hoffmann's Anodyne above.

Compound Tincture of Lavender—(Compound Spirit of Lavender).—Half a tea-spoonful on a lump of sugar, about as often as the Tincture of the Oil of Peppermint, should be given.

Tincture of the Oil of Peppermint ("Essence of Peppermint").—Half a tea-spoonful on a lump of sugar is a dose.

In all these things, reference is had to *reliable* articles from the apothecary's.

Compound Syrup of Squill, "Cox's Hive Syrup," improperly called "Syrup of Squill," which is the correct name of another thing, has a well-established use over the country, and is held in esteem by many of the older physicians. Many others, particularly the junior members of the profession, do not like it, from containing a small quantity of Tartar Emetic.

Having in several instances seen a good deal of unnecessary subsequent prostration follow from this ingredient of the Compound Syrup of Squill, the writer feels inclined to recommend the Syrup of Ipecacuanha instead, as an Emetic, leaving the other to be taken when specially ordered by the medical attendant.

Syrup of Ipecacuanha.—This is often known by the popular abbreviation of "Syrup of Ipecac," and when there are children in the house, especially in the winter season, when croup is prevalent, should be kept on hand in quantities of an ounce or so. Children can be made to swallow it easier than they can the pulverized Ipe-

cacuanha or Mustard, when vomiting is required, and from the tendency of small children to dispose of so many things by swallowing them, this syrup is often needed without the time to send far for it. It will keep for some months in a properly secured bottle.

The dose, as an emetic, for a child one or two years old, is a teaspoonful or more. This may be repeated every few moments until it acts. In croup and some analogous disorders, the sensibility of the nerves to the stomach appears to be so much impaired, that even this will not act as an Emetic, unless assisted by a Warm Bath.

Chalk-Mixture Powder.—If kept in tin-foil until ready for use, is better for preservation than the liquid mixture.

Mustard.—Pulverized Mustard, or, as it is commonly called, Ground Mustard, should always be kept in every house, and in a place where it can always be found. The kitchen can not always be depended on for a supply. The time the last is used there is not as often reported, as when some more is needed. The delay caused in sending and getting some, in case of many poisons, often decides the case. It is not easy to get it pure, but if there is any doubt about this, an extra quantity can be given as an emetic, as it will all be rejected, and none is absorbed into the blood. Great care should be observed in keeping the mustard in a tight, wide-mouth bottle, otherwise the delicate active principle will escape from the powder into the air and be lost.

As an Emetic, a tea-spoonful rubbed down in a tea-cup of warm water should be given every two or three minutes until vomiting commences, when draughts of warm water should be freely given until there is reason to think the contents of the stomach have been rejected.

Pulverized Ipecacuanha, "Ipecac."—This valuable Emetic (p. 92), should be kept in every house or place where it might be employed. A couple of drams is enough to get at once, and it should be kept in a bottle with a close-fitting cork. As much as will lie heaped up on an ordinary two-cent piece weighs about ten grains.

When it is desired in an attack of Croup to give an Emetic, there is nothing better for a child than this substance, as it does not appear to be absorbed into the blood to any extent, or if it does, no harm seems to occur, and it can be given without the fear of giving too much. Even if there should be more given than necessary, like ground mustard, the excess is brought up with the first effort of vomiting. See Syrup of Ipecacuanha (p. 133).

Sulphate of Zinc, "White Vitriol," is a prompt Emetic when given in solution in water, in the dose of about twenty grains, as much as will twice lie heaped up on a two-cent piece. This should be repeated every few minutes until vomiting follows. Although universally recommended as an Emetic in cases of Poisoning, and when on hand is most valuable, it is always better, instead of waiting for it, to give mustard or common salt. Not that the Sulphate of Zinc is inferior, but because it is so much easier to get ground mustard, and easier still to get common salt, which, in doses of a heaping table-spoonful dissolved in water (four or five tea-spoonfuls), is as good as either of the others. It should be given in this quantity every couple of minutes until it acts.

Persons have managed to take an ounce or more of the Sulphate of Zinc for the Sulphate of Magnesia, which its crystals resemble somewhat. If not vomited, it would so greatly irritate the stomach and bowels in such a dose, as to entitle it to be called an irritant poison. Half an ounce is enough, therefore, to keep in the house, and it should be kept in a bottle, not a paper.

Husband's Magnesia is as good, and much cheaper than the best English makes. Dose, a tea-spoonful for an adult.

Seidlitz Powders.—These depend for their value upon their reliability, and this upon the apothecary who sells them. They should be truly made, of active ingredients, freshly compounded, and kept perfectly dry in a cool place. Dissolve each powder separately in less than half a tumbler of water; mix together, and drink down while in a state of effervescence.

They should be taken early in the morning, before breakfast, and

the water should not be ice-water, for the cold condenses the escaping gas (Carbonic Acid) as it forms, and there is no effervescence.

The components of the Seidlitz Powder, or articles in most respects like them, are combined in various ways as "granular salts," and it is possible, owing to palatability, readiness of carrying, and small bulk, may, in the course of time, as effectually displace the Seidlitz Powder, with many people, as the Seidlitz Powder did the less elegant "Epsom Salts," "Rochelle Salt," and other things of the kind.

Tarrant's Seltzer Aperient.—Directions on the bottle. All these effervescing preparations must be kept from exposure to air, or their efficiency will become impaired.

Opium Pills, of one grain each, may be kept on hand, and as a precautionary measure, reduced to a powder before taken. One grain of opium is contained in twenty-five drops of laudanum, and in ten grains of the Dover powder.

Opium Suppositories.—If kept in a dry, *cold* place, will preserve their efficiency for a long time. The small form known as children's are quite large enough. One grain of Opium to each is a convenient size to keep. If needed, one can be followed by a second. Few things can be found more useful if kept on hand; and if the physician speaks of a Laudanum injection for relieving pain anywhere in the lower part of the body, he should be told of the supply of suppositories on hand.

As the three next salts still maintain quite a reputation, it may be well to say something about them.

Epsom Salt, "Sulphate of Magnesia."—The medium dose of this salt, often termed "salts," is an ounce. In bulk this is about two table-spoonfuls.

It should be dissolved in water, no more than is sufficient for the purpose.

In using Epsom Salt, always be sure not to take another substance much resembling it in appearance, and often kept about the house. This is *Oxalic Acid*, a powerful and *rapid poison*. The Oxalic acid is *sour* to the taste, the Epsom Salt is not.

It also resembles in color, and has been mistaken for the Sulphate of Zinc.

Rochelle Salt, "Tartrate of Potassa and Soda."—The dose of this salt is about half an ounce, or about a table-spoonful.

It should be dissolved in water. It is one of the constituents of the Seidlitz Powder.

Glauber's Salt, "Sulphate of Soda."—This old-fashioned, disagreeable salt is gradually disappearing from use, having been superseded by the Sulphate of Magnesia (Epsom Salt), which is less disagreeable to take.

The dose is half an ounce, dissolved in water, and taken like all other medicines of the class, of a saline character, upon getting up, before breakfast. A little lemon-juice, or a pinch of cream of tartar, is said to make it more acceptable to the taste.

Pills.—The persistent use of cathartics, whether in shape of pills, salt, or liquid, is sure to bring on trouble which nothing else for the rest of the life may correct. Be careful of what you eat, how you eat, and when you eat, and in a few months, never mind how much medicine of the kind is now taken, you will find, unless it is an exceptional case, a marked improvement in health.

If medicines, particularly pills, must be taken, do not use the wretched "vegetable" varieties, when there are so many better, to be had of any Apothecary, freshly made, of the best material, in proper quantities, and, as some people will say, at a much less price. The physician in the country, too, makes the same thing, in the same way, and under the same name. There are several of them, but the two to be remembered are the

Compound Cathartic Pill.

Compound Rhubarb Pill.—Three or four of either are a safe, gentle cathartic, acting by morning, when taken at late bedtime. Two will often answer.

These two kinds of pills being made according to the precise directions of the U. S. Pharmacopœia, can be had of any Apothecary, in

any quantity; and as they are made of the best material, they may be relied upon for the purpose intended. Beside these advantages, they are so constantly ordered by Physicians in prescriptions, that they are usually freshly made.

The "Compressed Pills," now so generally preferred on account of the purity of their components, as well as the ease with which they dissolve, will often be found more active than the same number of pills as usually prepared and kept.

Sugar of Lead (Acetate of Lead).—Used as a substitute for Lead-water, by taking of it pulverized a tea-spoonful dissolved in a pint of water, adding a table-spoonful of cider vinegar. It is quite as useful as the expensive "Goulard's Extract" of lead, and much less costly and easier to get.

Laudanum can be added to this lead-water the same as to any other.

Chlorate of Potash is not very soluble in water. Some of the salt made into a saturated solution is a popular gargle.

Quinine.—Two-grain quinine pills ordinarily can be best kept, reducing them to powder, to insure digestion at the time of using. In malarious regions, it is kept in larger quantities. By the ounce (437 grains) it can be ordered, per post, of wholesale dealers, at quite a moderate price. Any of the responsible dealers can supply it. The dose depends so much on circumstances that nothing can be said about it. It is soluble in the Aromatic Sulphuric Acid often found in houses. The best way to take it is to place the compact bulk on the tongue, and wash it down with a swallow of water.

It is much easier, by taking it, to *prevent* malarial poisons, than to *break* the "chills" afterward.

Sulphate of Cinchonia, and the Sulphate of Cinchonidia, as stated on page 88, are now much used as economical substitutes for the above salt. They much resemble Quinia in appearance and taste, and in a little larger quantity may be given under the same circumstances. For use on plantations, they can be best ordered per post, by the ounce, of some reliable dealer.

INDEX.