

Preservative plan; or, hints for the preservation of persons exposed to those accidents which suddenly suspend or extingui[s]h vital action, and by which many valuable lives are prematurely lost to the community / by A. Fothergill.

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PRESERVATIVE PLAN,

OR

H I N T S

FOR THE

PRESERVATION OF PERSONS

EXPOSED TO THOSE ACCIDENTS
WHICH SUDDENLY SUSPEND OR EXTINGUISH
VITAL ACTION,
AND BY WHICH MANY VALUABLE LIVES ARE
PREMATURELY LOST TO THE COMMUNITY.

BY A. FOTHERGILL, M.D. — F.R.S.

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Honorary Member of the Medical Societies of London, Edinburgh, and Paris,
and of the Philosophical Societies of Manchester, Philadelphia, &c.*

Sunt lacrymæ rerum, et mentem mortalia tangunt! — VIRG.

L O N D O N :

Printed by H. L. GALABIN ; and sold by
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1798.

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ADVERTISEMENT

TO THE

NEW EDITION.

THE very favourable reception this *Essay* has met with from an indulgent public, and particularly from certain distinguished literary characters, though wholly unknown to the writer, both on this and the other side the Atlantic, claims his earliest and most grateful acknowledgements.

Happy in the approbation of such able judges, he can easily forgive the captious cavils and misrepresentations of a certain *foi-disant* critic, whose feeble though invidious attacks on some of the ablest writers of the age had already sufficiently betrayed his own ignorance and want of candor. Indeed it has diverted the parties aimed at not a little, to see the random shafts of this medical *Mævius* recoil upon himself, or fall pointless to the ground. To just and liberal criticism the Author of this *Essay*, conscious of its imperfections, will always bow with reverence; nor will he disdain to listen calmly to well-grounded strictures, however severe, unless the hostile pen be evidently dipt in the gall of malice. But the genuine British critic is distinguished by candor as well

as

as acumen, and he who understands the subject the best, will ever be disposed to cavil the least.

“ Yes ; they whom candor and true taste inspire,
 “ Blame not with half the passion they admire ;
 “ Each little blemish with regret descry,
 “ But mark the beauties with a raptur’d eye.”

MELMOTH.

Having considered the theory of Animation, and the treatment of Vital Suspension from Drowning and Suffocation, it still may not be improper to subjoin a short sketch towards a PRESERVATIVE PLAN against these and other casualties to which mankind are constantly liable.

Let the friends of humanity, then, in spite of obloquy and opposition, persevere in exerting their united efforts to accomplish their two grand objects, namely, the PRESERVATION OF LIFE and the DIFFUSION OF SCIENCE. Embarked in the same glorious cause which actuated the first founders of the ROYAL HUMANE SOCIETY, and animated by the same generous motives, let us strive to extend its benign influence to wider and yet wider circles, till at length, like heaven-born Charity itself, it embraces all human kind, and with an out-stretched arm rescues those that are ready to perish.

A. F.

Bath,

July 10, 1798.



PRESERVATIVE PLAN, &c.

Nunquam homini satis cautum est in horas. — HOR.

AMIDST the casualties which prematurely abbreviate the span of life, there are some which can neither be foreseen nor prevented: a much greater number, however, evidently proceed from ignorance, inattention, or rashness. In the critical moment of danger, there is no time for cool reflection, and few have sufficient presence of mind to avail themselves of the best expedients that circumstances admit of; nay, the very remedy to which they have recourse, often serves but to aggravate the calamity. Since prevention is generally more easy and better than cure, it becomes the humane physician to point out the most probable means by which fatal accidents may be prevented; and even, where those fail, to suggest the speediest methods of mitigating their terrible effects. Were it possible to induce the common people to listen to the dictates of reason and common sense, and thus prevent them from wantonly running into danger, or increasing the mischief, by remedies worse than the disease, it would be one great step towards the accomplishment of our plan. It would enable us not only to disarm natural evils of their poignancy, but also to pour the balm of patience into those wounds of affliction that are unavoidable.

ACCIDENTS AT BIRTH.

From Compression or premature Separation of the Umbilical Cord.

If, during delivery, the umbilical cord be compressed, and the necessary intercourse between the infant and its placenta be intercepted, though but for a short space of time, the circulation ceases, and, the blood being deprived of a fresh supply of oxygen, the child's countenance assumes a livid aspect, as in drowning or suffocation, and it is born apparently dead. Or if, through the ignorance or precipitancy of the midwife, the cord be tied, as too often happens, before the function of the lungs be established, the infant is equally deprived of life. Such indeed is the importance of its connection with the placenta, that, even forty-eight hours after birth, if respiration happens to be suddenly impeded, Nature still makes an effort to avail herself of the function of the placenta, by renewing a perceptible pulsation at the navel.

The beginning of respiration is the entering upon a new mode of life, and often attended with no small difficulty. If the child neither breathes nor moves, it is pronounced still-born, or in a state of apoplexy. In order to draw blood, the midwife, as a probable, though mistaken, remedy, rashly cuts the cord; when, alas! her fatal sheers, like those of Atropos, cuts short the thread of life!

In

In cases of concealed pregnancy, the death of the child often unjustly implicates the life of the mother. If, on trial, its lungs happen to float on water, this has been deemed a proof that the child had previously breathed, consequently was born alive, and that its guilty mother must have been its executioner. A court of justice, however, ought to be informed, that air, generated in the lungs from putrefaction, emphysema, or even from the mother's attempt to save her child, by breathing into its lungs, may exhibit the same appearance, by rendering the lungs buoyant in water. Any inference, therefore, drawn from this test, can only amount to a mere suspicion; by no means to a proof.

It is to be lamented, that still-born infants, though full-grown, are generally considered as irrecoverable, and put aside with as little ceremony as though they were mere abortions. In the TRANSACTIONS of the HUMANE SOCIETY, (that valuable repository of interesting facts,) our worthy Treasurer presents us with several pleasing exceptions to the general rule. He records various instances of complete success from very simple and humble means, namely, warmth, friction, and inflation of the lungs; though some of the infants, we are informed, had been given up at least two hours by the midwife and attendants. Such happy exertions do credit to the professional skill and assiduity of a MANTELL, a COPLAND, a THOMPSON, a

CHAMBERLAINE; and therefore deserve honourable mention.* The Preservative Plan extends our views even to children yet unborn:

“ Et nati natorum, et qui nascentur ab illis.”

Remarks.

1. In order to prevent these casualties in the first stage of infancy, midwives ought to be well instructed not only in the mechanical part of their profession, but also in the laws of organic life peculiar to the foetus.

2. The umbilical cord ought never to be tied or hastily cut, till the new function of breathing be established, which is known by the child's crying, or the heaving of its chest.

3. Children, born apparently dead, ought not to be hastily given up merely because the pulsation of the umbilical cord has ceased to be perceptible.

4. The mouth and nostrils being well cleansed, and the tongue drawn forward, the lungs ought to be inflated with atmospheric air, while the native warmth is kept up by a tepid bath and gentle friction, accommodating the process to the delicate state of its organs.

* See Transactions of the HUMANE SOCIETY, p. 232; and Reports for 1797 and 1798.

5. To expedite breathing or crying, a feather dipt in concentrated vinegar may be introduced into the nostrils, or cold water may be let fall from a height, drop by drop, on the region of the heart and præcordia. Though the efficacy of this safe and simple remedy has been long experienced in Germany, it seems to be wholly neglected in this country.

Convulsions.

By convulsions in the first stage of infancy, or what ignorant nurses term inward fits, many thousands of young children prematurely perish! A circumstance, unusual among the young of other animals, and scarcely heard of among savage nations. This extraordinary mortality, then, is not natural, but acquired; otherwise why should the infant race of this and other polished nations be more prone to convulsions than that of rude and savage tribes? A survey of the state of society in this country may help to unfold the difficulty. We every where find a considerable proportion of the inhabitants of villages crowding into great cities, where they soon contract from the natives the evil habits arising from corrupt manners and unnatural modes of life. Among the higher ranks, we find luxury, intemperance, and voluptuous refinement, with their whole train of enervating allurements.

Among the lowest class, poverty, with its usual concomitants: impure air, want of cleanliness, bad provisions; but, above all, an unhappy propensity to spirituous liquors.

Now both these states, however opposite they may appear, have, nevertheless, as might be easily proved, a direct tendency to enfeeble the human frame and produce a CONSTITUTIONAL DEBILITY.

Parents, having acquired this infirm state of body from their progenitors, or their own intemperance or that of their nurses, too often transmit it to their offspring. Hence the puny sickly race of children, who, like tender hot-house plants, shiver at every breeze, and, being tremblingly alive to irritation, are soon thrown into convulsions.

The most numerous instances of a healthy progeny, it is presumed, will be found among the middle class of society, equally remote from the mansions of pampered pomp and the comfortless abode of abject poverty. Towards these two opposite extremes, however, the nation is daily verging, while the middle class is gradually diminishing. Should the present evil tendency, with all its deviations from nature and primæval simplicity, continue to prevail, there can be but small hopes that succeeding generations will improve either in their morals or constitutions.

Ætas parentum pejor avis tulit

Nos nequiores mox daturos

Progeniem vitiosorem.

HOR.

The

The remedy, then, rests with parents, guardians, legislators, &c.

Watery Element.

Accidents from the watery element are evidently most frequent in the bathing season, particularly in deep muddy rivers, abounding with clay, weeds, shoals, or quicksands. Such, for instance, as the river Avon, between Bath and Bristol, in which many melancholy disasters have happened, and which, by an uncommon degree of fatality, have generally precluded all hopes of recovery.*

Remarks.

1. In the bathing and skating seasons, parents and guardians ought to exert their authority in prohibiting giddy unthinking youths from pursuing, at the imminent danger of their lives, these exercises in improper and hazardous situations.

* Strange that the opulent city of Bath, the celebrated asylum of invalids, famed for its variety of accommodations for the alleviation of pain, sickness, and disease, superabounding too with medical practitioners and public-spirited inhabitants, not less willing than able to support benevolent institutions, should still be without a Humane Society for the recovery of the Drowned!

2. Every

2. Every large town ought to supply the inhabitants with a commodious pleasure-bath, where these salutary exercises might, in their respective seasons, be carried on in perfect safety, and free of expense.

3. All fords and watering-places, through which horsemen and carriages pass, and which become dangerous on every sudden flood, ought to have posts with water-marks, denoting the depth, in legible characters.

4. The rapid increase of navigable canals, which now intersect this island in almost every direction, cannot but increase the number of accidents from drowning. Consequently, the establishment of Humane Societies will become more than ever necessary;—an undertaking in which the proprietors, as well as the public at large, it is hoped, will not fail to interest themselves.

5. In the act of drowning, when two or more are present, it, alas! often happens, that he, who hastens to rescue his companion, loses his own life in the generous attempt, and that without being able to accomplish his benevolent purpose! For, a drowning person, in grappling with his assistant, wherever he catches hold, never lets go his tenacious grasp while life remains.

To prevent this, the assistant should, before he plunges into the water, make a running noose on a handkerchief, cravat, or garter; then, cautiously approaching his struggling companion, without suffering

suffering himself to be intangled in his embrace, instantly pass the noose over a hand or foot, which ever presents itself, and thus might he safely draw him on shore.

In the recovery of the drowned, the early inflation of the lungs, though hastily condemned by a late writer, is assuredly the most essential part of the process, as appears from reiterated experiments.

The general treatment, having been fully described in my *NEW INQUIRY*, need not be here repeated.

Fire.

If a single spark falling among combustibles be sufficient to kindle such a conflagration as may spread ruin and devastation through a whole neighbourhood, the following precautions, it is presumed, will not be deemed impertinent.

1. *To guard against fires breaking out.* — By a strict police, and by rendering neighbours mutually responsible, and of course interested in the security of each other and of the whole district. The want of such responsibility, creating a careless indifference, defeats the general utility of insurances, on which individuals place a selfish dependance for reimbursement. Hence fires have been observed to be more numerous than they were before insurance-offices were instituted.

2. *Magazines*

2. Magazines of gunpowder, distilleries, sugar-houses, and all hazardous occupations, ought to be removed from cities, and carried on in detached offices in the country.

3. *To prevent fires from spreading.* — All communication ought to be cut off by party-walls, and by insulating the apartments by thin plates of iron or copper, or by strata of sand. Also by stone stairs, well-constructed chimneys, &c.

4. *To extinguish fires.* — The outward air should be excluded as much as possible, as the sudden opening of a door or window increases the conflagration. When water is plentiful, it ought to be poured on abundantly in incessant streams from the engines. When scarce, its efficacy may be greatly increased, by dissolving in each hoghead two pounds of alum or half a bushel of wood ashes. A mere sprinkling of water, it is to be observed, instead of extinguishing the fire, aggravates the flames. The reason is evident. The water, being overpowered and decomposed by the intense heat, suddenly lets loose its principal ingredient, vital air, the grand source of combustion.

5. *To facilitate the escape of the family.* — The upper stories ought to be previously provided with fire-ladders, or, rather, COOPER'S PATENT APPARATUS, (sold in Middle-Row, Holborn,) capable of conveying three or four persons at a time with safety and expedition.

6. Many

6. Many melancholy disasters happen every year from women's head-dress catching fire, by reading or writing late by candle-light, when half asleep. Also by leaving young children alone by a fire, especially if it be composed of green wood; this fuel, of all others, being most liable to emit sparks, demands peculiar care.

The muslin and gauze, so universally worn by the ladies, expose them, in a peculiar manner, to fatal accidents, especially in a cold season, when, by frequent sitting close to a hot fire, this flimsy clothing is converted into a species of tinder, ready to catch flame from the slightest spark. The moment this happens, the affrighted female, in wild dismay, flies from room to room, and thus fans the flame, while her astonished companions (if any be present) stand aghast, not knowing what to do, till her fate is probably determined.

Remarks.

7. On such emergencies, the ladies ought to recollect, and indeed it ought never to be forgotten, that, in order to extinguish flame at once, nothing more is necessary than to exclude the external air; for, without air, no substance, however inflammable, can burn a single minute. They cannot but have frequently observed the effects of an extinguisher when placed over the flaming taper, or of the damper of a tinder-box on the burning tinder.

The

The application is obvious. Therefore, should an invidious spark dart on any part of their tindered muslin attire, or the flaming taper suddenly seize their goffamer caps, their nodding plumes, or their flowing ringlets, let both their hands (for, not a moment is to be lost) instantly become at once the damper and extinguisher. Were a wet towel or handkerchief luckily in readiness, it might, as a damper, help to spare the extinguisher its painful office. But, where this timely precaution is neglected, and the flame has already made considerable advances over a large surface, the attendants, without ceremony, must instantly cover the part with the hearth-rug, or, rather, wrap up the whole body close in the carpet or oil-cloth, till a servant can arrive with water, which must be poured on in abundance, or what would be preferable, a solution of wood-ashes from the ley-tub.

8. To allay the pain and anguish, and prevent the skin of the inflamed parts from stripping off, the surface should be first bathed with brandy, camphorated spirits, or æther, all which, from their speedy evaporation, give present ease, and create a pleasing sense of coolness. Afterwards, sprinkled with cold vinegar for half an hour successively, or conveyed in gentle sprays from a watering-pot. The application of snow (at a season when it is to be had) might probably prove still more efficacious.

Stroke

Stroke of Lightning.

Persons, struck apparently dead by lightning, have been considered by some as the immediate objects of Divine wrath; by others, more charitably inclined, as the peculiar favourites of Heaven; while it has been concluded by both parties, that any attempt to restore them must not only be vain, but presumptuous. In all ages, indeed, those unfortunate objects, through ignorance and superstition, have generally been abandoned to their fate. The two singular instances of happy recovery mentioned in my HINTS ON ANIMATION, in 1783, helped, in some measure, to correct popular prejudice, and also to confirm what I had long suspected, namely, that these persons, provided there was no fatal laceration, might probably be restored by similar means as those from drowning or suffocation. Other remarkable cures have occurred since, as appears from the Society's Reports, and which bear ample testimony to the success of human means judiciously applied.

That lightning and electricity depend on the same subtile fluid, and obey the same laws, is now well known, and their identity too well established to need any farther proof. This fluid, though every where present, remains silent and perfectly at rest, till the equilibrium be disturbed, when it suddenly

suddenly strives to restore the balance: rushes with inconceivable rapidity along the best conductor that is at hand, and in its course rends rocks, shivers the loftiest oaks, and overturns every thing that resists its passage.

Lightning, in the higher regions of the atmosphere, is a harmless lambent flame, producing those gleaming coruscations in hot seasons which are generally destitute of danger. But, when an overcharged thunder-cloud hangs low, the danger increases; yet, if an interval of four seconds and a half intervenes between the flash and the report, the distance may be presumed to be at least an English mile. When it approaches still nearer the earth, and a tremendous explosion instantly follows the flash, it threatens more imminent danger, in proportion to what electricians call the striking distance, which seldom, perhaps, exceeds fifty feet. When the ground, as in a very dry season, is charged positively, and the superincumbent cloud negatively, the returning stroke may prove as fatal as one directed downwards.

Remarks.

1. To secure persons as well as property, dwelling-houses, and particularly public buildings, as churches, theatres, gunpowder-magazines, and distilleries,

distilleries, ought to be well armed with suitable conductors, which, when perfect, generally convey the electric fluid silently into a body of water under ground.

Should these sometimes fail of the desired effect, the accident would argue no defect in the principle, but in the conductors, which are often ill constructed, or deprived of their conducting power, by being covered with rust.

2. To persons within doors, who, during a thunder-storm, are extremely timorous, electricians agree in recommending an under-ground cellar, (keeping at a distance from the walls,) as the safest place to which they can retire; because the electric fluid is dissipated on all sides by the surrounding moisture.

3. In the rooms above, they ought carefully to avoid sitting too near any metallic or conducting bodies, as fire-irons, bell-wires, brass chandeliers, ornamental gildings, &c.

4. To recline on a mattress in the middle of the room, or on a couch, suspended by silken cords, or supported on glass feet or baked wood.

5. Persons without doors ought to avoid taking shelter under trees, hedges, or hay-ricks, or leaning against iron pallisades, or any pointed, angular, or metallic, body, which may tend to attract the lightning towards the place. For the same reason, also, ladies should lay aside, during the storm,

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their

their brass-mounted umbrellas and long hair-pins; and reapers, their scythes, hooks, forks, &c.

6. The deluge of rain, which generally accompanies thunder-storms, providentially diminishes the danger, by rendering the human body a more perfect conductor. Hence, perhaps, it is, that some persons escape better than others, and particularly those who perspire copiously, or whose clothes are drenched with rain, which also helps to explain why a wet animal cannot be killed by a shock from an electrical battery, which would instantly dispatch the same animal when dry.

“A labourer,” says Dr. Hawes, “was lately struck apparently dead with lightning, having a scythe in his hand. A heavy fall of rain and hail ensued: the effects were such, that, in the course of an hour, languid life returned, and at length was perfectly restored.”

“It is possible,” adds the Doctor, “that nature has taken this medium of pointing out a *new* remedy for persons apparently killed by lightning. It also evinces how dangerous it is to carry any metallic implement in a thunder-storm.” Reports for 1798. An important hint, and worthy of attention.

7. A flash of vivid lightning, received full in the face, sometimes causes a fainting-fit, and paralyzes the optic nerves, producing incurable blindness. The face, therefore, should be turned from the thunder-cloud, or the eye-lids closed.

8. In

8. In vital suspension from the vehement stimulus of the electric fluid, the body retains its heat and flexibility longer than usual. Instead of artificial heat, the nature of the case may possibly require, like that of suffocation in the Russian stoves, a free use of the cooling plan. — “*Dies doceat.*”

9. Violent shocks of electricity exhaust the living principle, while gentle vibrations restore it, by correcting even its own excesses. Thus deafness, occasioned by a loud peal of thunder, has, in one rare instance, been suddenly known to have been afterwards removed by a subsequent flash of lightning.

10. Be it remembered, that thunder-storms, volcanoes, and earthquakes, those awful phenomena of nature, though alarming to mortals, and often disastrous to individuals, are, nevertheless, not without their use in the economy of our planet. Among other purposes, less obvious, they serve to carry off redundant electricity, disperse noxious vapours, and fertilize the earth. They moreover dispose the mind to devotion, and, by shewing man his dependance, teach him humility and resignation. For, how can such a display of sublime grandeur and magnificence fail of inspiring him with the most exalted ideas of the omnipotence of Him “who rides in the whirlwind and directs the storm?” and who, amidst his judgements, remembers mercy!

Noxious Air.

This comprehends all the mephitic vapours or unrespirable airs, as carbonic gas (fixed air), hydrogen (inflammable air), azotic gas (air vitiated by respiration, combustion, or putrefaction). To which may be added, metallic effluvia, as those of lead, copper, mercury, arsenic, &c. not to mention the suffocating vapours arising from smoaking spirit of nitre, or of sea-salt, from burning charcoal or sulphur, active volcanoes, &c.

Hence the fatal accidents which often befall persons working in mines, lime-kilns, smelting-houses, breweries, and also those who are shut up in crowded prisons or slave-ships, &c. destitute of proper ventilation.

Though the common atmosphere contains a large proportion of azotic air, with a certain portion of carbonic gas, together constituting three-fourths of the whole; and, though both are deadly poisons, yet the remaining fourth part, being vital air, it renders the aërial mass a salutary compound fit to support respiration and flame, and without which neither plants nor animals could exist.

Remarks.

Remarks.

1. In order to correct noxious air, of whatever species, it requires nothing more than ventilation or the admission of a current of fresh atmospheric air, which presently supplies successive portions of vital air, sufficient to render the whole respirable.

2. To determine whether the air of a mine, well, or large vat, be safe, let a lighted candle be conveyed to the bottom by a cord. If the flame continues bright, the air is sufficiently pure; but, if it causes a slight explosion, burns dim, or goes out, be assured the air is noxious.

Before any one should presume to descend, let several vessels of boiling water be poured down in succession. Or the foul air may be dispersed, or driven out, by the following simple method:—To the nozzle of a pair of large bellows let a flexible tube be affixed, of sufficient length to reach to the bottom of the shaft or well. Then let the bellows be worked briskly for a few minutes: the air, being thus renewed, will be found to support the flame of the candle as well as the external air, and workmen may now descend with perfect safety.

3. Woolcombers, smelters of metals, gilders, and others, who are obliged to work over charcoal fires, ought to place near them a tub of lime-water, which will powerfully attract the mephitic emanations

till it is fully saturated, or covered with a variegated film. It should therefore be renewed every other day.

4. In addition to this, painters, plumbers, manufacturers of white lead, and grinders of colours, ought to be provided with a suitable mask or muffler, to guard the mouth and nostrils, as I have elsewhere hinted.*

5. That industrious poor men, in earning a scanty maintenance, should sacrifice their lives, is truly deplorable. Humanity, as well as sound policy, demands, that the grinding of white lead, verdigrise, orpiment, and other pernicious colouring substances, should be carried on under a body of water, and as many of the other dangerous processes as possible, by suitable machines.

6. In the construction of laboratories, smelting-mills, and other offices, where mephitic vapours or noxious metallic fumes are copiously generated, a free ventilation ought to be secured, by means of air-tubes and ventilators.

7. Since animals, shut up in factitious unrespirable airs, die sooner even than *in vacuo*, and since some patients, in respiring a mixture of such airs as a new and fashionable remedy, have narrowly escaped suffocation, such experiments in future ought surely to be conducted with more circumspection. This, however, is not meant to damp the laudable spirit of inquiry, but to instill proper caution.

* Cautions concerning the Poison of Lead, Copper, &c.

Gunpowder and other explosive Compounds.

1. In the manufacture and management of gunpowder, in which so many dreadful disasters happen, it is impossible to be too cautious. The ingenious philosopher Dr. Moyes assures me, that gunpowder, independent of the accidents occasioned by unpardonable carelessness, is liable to a spontaneous explosion, from causes hitherto little suspected. That from too hard beating, or too forcibly ramming down the charge, or even by the violent rolling of a ship in a hard gale, the great guns have been known suddenly to go off without any visible cause. That a mere air-bubble in a pane of glass, converging the solar rays, as in a speculum, has been known to blow up a magazine of gunpowder.

2. Besides gunpowder, there are other dangerous compositions capable of producing, on exposure to heat, no less violent explosions. Such are the fulminating calces of gold, silver, or copper: but, above all, the oxygenated muriate of pot-ash, which, in a late experiment at Paris, by the gentlest friction imaginable, caused a tremendous explosion, which proved fatal to more than one of the spectators.

3. Other bodies there are which, without the intervention of fire, are capable of igniting combustible substances, or bursting into actual flame, and therefore, in the hands of ignorant persons,

may produce dreadful conflagrations. Among these are quick-lime, in the act of slaking on a wooden floor; phosphorus, in contact with wood; nay, a common glass decanter, of a globular shape, if placed when full of water on a table exposed to the meridian sun, has been found sufficient to burn any combustible substance within the reach of its focus, and finally to consume the whole furniture of the room.

4. Linseed-oil, mixed with lamp-black, with black wad, and with certain vegetables, kindles spontaneously; and concentrated mineral acids, with essential oils, suddenly burst into a blaze.

Pestilential Contagion.

Under this head may be comprised not only the plague, but the small-pox, the measles, the yellow fever, and other malignant diseases of the putrid or contagious kind, which are propagated by contact or effluvia emanating from the sick. By this formidable class of diseases, myriads of the human race have been swept from the face of the earth!

As the sphere of contagion under all these forms appears, from many circumstances, to be chiefly confined to the sick room, or to extend but a few paces beyond the infected body, it seems surprising,
after

after the experience of so many centuries, that so little has been accomplished towards arresting its career or preventing its propagation. This, indeed, has been attempted in the plague and yellow fever, by establishing quarantines and lazarettoes; also by various prophylactic remedies, as wine, bark, camphor, vinegar, aromatic fumigations, &c. but without materially checking the contagion in its course, till it hath exhausted itself, or spontaneously ceased on a cold season setting in.

A remnant of the subtle poison, however, attaches itself to vestments, furniture, and other surrounding objects, and lies dormant till a warm atmosphere and other occasional causes renew its activity and recal it into action.

Remarks.

When the preservation of life shall once become an important object of national concern, and a BOARD OF HEALTH shall be instituted in this as in other enlightened nations, then, and not till then, can this or any efficient preservative plan, in such cases, be duly carried into execution. Under such an institution, directed by the Faculty, and strictly enforced by an act of the legislature, there is reason to believe that this fatal class of diseases might, at no very distant period, be greatly reduced, if not wholly exterminated.

1. By

1. By entirely cutting off communication with infected bodies, as in a well-conducted lazaretto.

2. By carefully purifying all goods, vestments, and utensils, exposed to the contagious principle.

3. By guarding against contagion being re-imported from abroad, by a more strict regulation of quarantines and lazarettoes.

4. By convalescents using a tepid bath and fumigations repeatedly before they come abroad.

5. By impregnating the sick room with its entire contents, including bedding, clothes, and utensils, with the fumes of the nitrous acid, evolved from nitre, by pouring thereon vitriolic acid over a gentle heat, as described by Dr. C. Smyth. This process, however, demands caution, otherwise the pungent acid fumes may prove very injurious to persons of weak lungs, especially as the doors and windows require to be kept shut.

6. The new method of prevention, which has been employed of late in the Plague-Hospital at Smyrna, for the prevention and even cure of that disease in its first stage, is too interesting to be passed over in silence. The remedy, then, as communicated by the humane and truly benevolent LEOPOLD COUNT BERCHTOLD, consists simply in powerfully rubbing the whole body with tepid olive-oil. The quantity of oil necessary for such application may amount to half a pint or upwards. This operation, if performed properly and with expedition,

expedition, produces a very profuse sweat, by which the contagion is quickly discharged. When the sweat is gone off, the body being rubbed with warm flannel, the operation may be repeated, and the perspiration encouraged, by drinking warm elder-flower tea. The diet to consist of rice and other farinaceous substances, with oranges and other acid fruits, fresh or preserved. But the oil must be had recourse to on the first approach of the symptoms, otherwise it cannot be depended on.

Mr. Baldwin, the English consul at Alexandria, having previously informed him of a very curious fact, viz. that, out of an immense number of persons in Egypt, who had died of the plague, there was not found a single oil-porter! The Count naturally concluded that oil must be a preservative against the contagion. "Accordingly," says he, "I tried it in such persons who had intercourse with the infected, and never found it fail. In the year 1793, twenty-two Venetian sailors lived five days with three infected persons; the three last died; but the twenty-two sailors, who had been repeatedly anointed with the oil, remained free of the infection. In the same year, three Armenian families, consisting of twenty-seven persons, who, occupying the same floor, daily attended the sick of the plague, but, being duly rubbed with olive-oil, were preserved from the infection. In 1794, a nurse, who had the care of thirteen ill of the plague, and though never
absent

absent from the sick-room day or night, yet, by employing the same means, escaped the contagion." Other instances of success, no less remarkable, are added, but must, for brevity's sake, be omitted.

If olive-oil, then, can resist the plague, the typhus major, or *maxime contagiosa* of nosologists, why may it not be reasonably presumed sufficient to counteract the typhus minor, the jail-fever of this country, the yellow fever of the West Indies, and other inferior species of contagion of the same class?

Its efficacy against other animal poisons taken in by the skin, as that of the wasp, the bee, and even of the viper, has been long known in England. Might it not then well deserve a trial against the canine poison, both as a preservative and a cure? Might not a profuse sweat, thus excited on the first approach of the hydrophobia, tend to expel the poison, or at least counteract the tremendous spasms?

While ruminating lately on this new remedy, the following case afforded a desirable opportunity of trying it in an advanced stage of typhus fever, though without much hope of success.

Being called to a poor boy, named Thomas Counte, in a wretched lodging in a narrow alley in Bath, on the sixth day of the disease, I observed, among other symptoms, a quick tremulous pulse, great prostration of strength, attended with diarrhoea,
muttering

muttering delirium, and the abdomen discoloured with purple petechiæ. The whole body was directed to be gently rubbed with olive-oil three times a day, and its operation to be aided by warm whey, with the foregoing diet and regimen. A copious sweat was at length, though not without difficulty, produced. By pursuing the method proportioned to his feeble state, the symptoms began to diminish, the purple spots disappeared, the fever subsided, and his subsequent recovery was speedy and favourable beyond all expectation.

No sooner had he recovered, than the poor woman, who nursed him in his illness, was seized with evident symptoms of having caught the contagion. Powerful rubbing with olive-oil, together with the same regimen, was instantly had recourse to, and with the same happy success.

Though one or two successful cases are by no means sufficient to confirm its efficacy in the typhus fever, yet these, in addition to the numerous instances in the plague adduced by Count Berchtold, it is hoped may be sufficient to excite medical attention to this simple remedy, and to stimulate practitioners in the army and navy hospitals to give it a fair and candid trial.

As a preservative to the faculty, nurses, and others, who are peculiarly exposed to the contagion, it would seem requisite, on entering the sick-room, to guard the mouth and nostrils with a tea-spoonful
or

or two of the oil, though this has not been mentioned by the Author.

The theory of this remedy, though by no means obvious, might perhaps admit of some explanation: yet any attempt to account for its action, till its efficacy be more fully ascertained in this country; would certainly be premature.

Intense Cold.

Though man is so happily constituted as to subsist in the polar regions and under the line, and enabled, by his superior sagacity, to guard against the vicissitudes of heat and cold beyond other animals, yet few winters pass, in this our comparatively mild climate, without some melancholy examples of benighted travellers perishing in the snow or falling victims to the inclemency of the weather.

Remarks.

1. As the cold first seizes the extremities, as the nose, lips, fingers, and toes, these parts ought to be particularly guarded by a warm covering of fur, flannel, or fleecy hosiery, in form of mask, gloves, socks, &c.

2. Let

2. Let the benumbed traveller beware of falling into the common error of suddenly exposing himself to a hot fire, of drinking strong liquors or spirits, and, above all, of yielding to the fascinating power of sleep, which the intense cold, under such circumstances, renders almost irresistible. For, sleep speedily brings on torpor, and torpor death.

3. Instead of spirits, let him drink a moderate draught of cold spring-water, rubbing the benumbed parts with the same, and walking briskly after it. This will impart more genial warmth and vigour than the strongest liquor, and will also prevent the extremities being frost-bitten.

4. Should no friendly cottage afford a night's shelter against the pitiless storm, let him, on finding his strength exhausted, rather than lie down hopeless and exposed to the piercing air, exert yet one effort to preserve life, by making a cavity in the snow, and, covering himself with the same, leave only a small opening for breathing. By this method his native warmth will be retained, and strength recruited to enable him to weather out the storm. Under drifted snow, sheep subsist many weeks with impunity, and the tenderest plants are protected by it as by a warm covering; snow being one of the most imperfect conductors of heat.

Extreme Heat.

Those, who visit the hot regions of the torrid zone, and are under the necessity of exposing themselves to the scorching rays of a vertical sun, are often seized with ardent fevers or a fatal phrensy, termed *coup de soleil*.

Remarks.

1. To prevent such accidents, the mid-day traveller should be clothed in white, and shelter his head from the sun with a white parasol. If a linen napkin placed also under his hat be often moistened with water, the evaporation will produce an agreeable coolness sufficient to temper the fervid heat.

2. To fortify the British traveller against the enervating heat of our East and West Indian settlements, the daily use of ice, cold bathing, or the shower-bath, might be very advantageous. The coolness diffused by fountains, sprays of water, or vinegar, might also prove extremely refreshing.

3. Let mowers, reapers, and those who work in forges or glass-houses, when over-heated and fatigued, beware of suddenly quenching their thirst with immoderate draughts of water, cider, or other cold liquors, a practice too common, and often attended with alarming consequences.

4. Instead

4. Instead of this, let them drink tepid liquors, or allay their thirst, while at work, by rinsing the mouth with water, or holding a few spoonfuls in their mouth till it be warmed, before it is swallowed. Whether sudden transitions from heat to cold, or from cold to heat, are most injurious, might admit of doubt; for, though examples of the former are only attended to in Great Britain, yet the effects of the latter ought to be by no means neglected.

Intoxication.

Habitual drunkards may be considered as suicides, since, by deliberate acts of intemperance, they precipitate their fate, proving sooner or later their own executioners. Deep intoxication, however lightly it may be treated by ignorant spectators, is a temporary apoplexy; a case replete with danger, and the more so the more suddenly it is brought on. The rapid ingurgitation of strong liquors, by its violent action on the nerves of the stomach, and by exhausting their energy, at once overwhelms the faculties. Hence the numerous fatal accidents of this nature, in consequence of presumptuous wagers, or the ignoble ambition of surpassing others in the indulgence of a low contemptible vice, that ought to cover them with shame.

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To see a rational being suddenly transformed into a brute, grovelling in the mud, with the head downwards, the countenance bloated, and the eyes suffused, — what a mortifying spectacle!

Remarks.

1. To avert the impending danger, let such a person be immediately placed in a sitting posture, with the head raised by a pillow, undoing at the same time the shirt-collar.

2. The offensive liquor should be discharged out of the body as speedily as possible, by an active emetic, followed by a brisk purgative.

3. Should the power of deglutition be impeded, the remedies must be introduced by means of a catheter or flexible tube, as in cases of drowning.

4. A napkin, dipt in cold water or vinegar, should be applied to the head, and cool air admitted into the room, excluding all idle spectators.

5. Should the insensibility and lethargic symptoms increase, no time should be lost in consulting some judicious practitioner concerning the propriety of opening the temporal artery or jugular vein.

6. The admonitions, necessary towards reclaiming men from the odious vice of drunkenness, have already been most earnestly impressed in a separate tract,

tract, which it will be their interest duly to observe.*

Poisons.

Happily few poisons are known to the common people, except arsenic, corrosive sublimate, and opium. These, when taken in an over dose, whether by accident or design, have suddenly produced very tragical effects.

Remarks on Arsenic, &c.

1. To discover whether the poison recently swallowed was really this mineral, let a part of it be placed on a hot iron, when the garlic odour will presently arise if the substance was arsenic. It may be also detected by its whitening a warm plate of polished copper; but still more clearly, according to Professor Bergman, by communicating a green colour to a solution of blue vitriol.

2. Arsenic ought to be carefully kept under lock and key, and never vended but with extreme caution. Druggists and apothecaries have been lately admonished by the HUMANE SOCIETY, at

* See Essay on the Abuse of Spirituous Liquors, &c. 1795, which obtained the Bath Society's Honorary Premium.

the earnest request of their worthy Treasurer, "not to suffer so dangerous a substance to be sold in their shops, unless two or more creditable persons shall accompany the buyer, and testify the purpose for which it is designed."

3. Those, who have recourse to so dangerous a remedy for the cure of agues and other diseases, ought to be admonished, that it is at the risk of the patient's future health, and that, without the utmost nicety and precision as to the dose, the cure may prove much worse than the disease.

4. Arsenic, even in the dose of a few grains, causes excruciating pains, enormous vomitings, erosions of the stomach, cold sweats, convulsions, mortification, and death.

5. To prevent the impending danger, the poison ought to be evacuated with all possible expedition. Let, therefore, an emetic of thirty grains of white vitriol be instantly given, drinking, at repeated draughts, a gallon of tepid water, to which are added two ounces of castor-oil.

6. To decompose or subdue any remaining particles of the arsenic that may be still lurking in the folds of the stomach or bowels, let two ounces of liver of sulphur be dissolved in a gallon more of tepid water, drinking a pint every half hour, till the whole be taken.

7. Other mineral poisons, as those of lead, copper, or corrosive sublimate, require nearly the same
treatment

treatment as I have elsewhere described at large.*

Opium, or Laudanum.

This narcotic drug, taken in a certain quantity, soon disorders the functions of the brain, producing lethargic symptoms, terminating in apoplexy, convulsions, and death, but not without exquisite torture. Hence the unhappy suicide, who hopes, by this stupifying poison, to produce an easy and pleasant exit, may prove miserably mistaken.

Remarks.

1. If the over dose of opium has not been taken more than an hour, before it is discovered, it may possibly still be wholly evacuated by the emetic, followed by the castor-oil and copious libation, as in the case of arsenic.

2. When the opium has been already taken a full hour or upwards; has begun to enter the blood-vessels, and rendered deglutition difficult, if not impracticable, the following remedy must then be introduced into the stomach, by the method already described, under article *Intoxication*.

* See Cautions to the Heads of Families on the Poison of Lead, Copper, &c.

3. Take

3. Take ipecacuanha-wine four ounces, of which let an ounce be administered every hour or oftener in warm vinegar-whey, aiding its operation by the warm bath and copious beverage.

4. The only chance of evacuating the remains of the stupifying poison is, by thus converting it into a powerful sudorific, as in Dover's Sweating-Powder, and thereby expelling it through the pores of the skin.

5. By this method, some years ago, I happily succeeded in saving the life of an amiable young woman, who, through the mistake of the apothecary, had taken, in place of tincture of rhubarb, about two ounces and a half of liquid laudanum. This enormous dose had been swallowed upwards of an hour before I saw her. The lethargic symptoms, crowding on apace, were become very alarming before the remedy could be got down. Being vigorously pursued, however, with the above-mentioned regimen, it produced at length, according to my wishes, a most profuse sweat, which continued several hours, and ultimately terminated in perfect recovery. After being rescued by this hair-breadth escape, several days elapsed indeed before her disordered senses were completely restored.

Passions.

As hurricanes and tornadoes, with irresistible force, on a sudden, spread ruin and desolation, and deform the fair face of Nature, so violent gusts of passion, those whirlwinds of the soul, sometimes arrest, in a moment, the springs of life, and instantly derange the whole human economy. Hence anger, terror, and even joy, when vehement, have suddenly brought on, in persons of acute sensibility, syncope, apoplexy, or sudden death.

Remarks.

1. During the suspension of the vital functions, let the patient be exposed to a current of fresh air, by opening a window, while cold water is sprinkled on the temples, and concentrated vinegar applied to the nostrils.

2. After these have been pursued ten or twelve minutes, should no visible signs of life appear, the method of restoring animation, as recommended in cases of drowning or strangulation, must immediately be had recourse to.

3. As soon as the vital functions begin to return, the patient is often seized with giddiness, nausea, and bilious retchings. No emetic, however, nor
rough

rough medicine, must be hazarded, which, at this juncture, would infallibly exasperate the symptoms.

4. On the contrary, the violent commotion of body and mind must be suffered to subside, and the symptoms allayed by the most lenient remedies, especially those of a composing kind, such as mild opiates, or Hoffman's Anodyne Liquor.

5. To guard against a return of the suspension which might prove fatal, not only the object which occasioned it, but every other connected with it, which, by association, may tend to rekindle the passion, must be kept perfectly out of sight, and the mind soothed, by the charms of music or poetry, till reason resumes the helm.

6. The syncope, which suddenly supervenes violent hæmorrhages, malignant fevers, or sea-scurvy, demand the like lenient treatment and precaution as to powerful stimulants.

Premature Burial.

In this, and every case of apparently premature death, where no gradation of disease has preceded, more than ordinary precaution ought to be taken against premature burial, a circumstance that has sometimes happened, and of which some affecting instances

instances stand upon record.* Many more, especially during the tumultuous scenes of war, doubtless too often occur, both by sea and land, yet pass unknown, unobserved. In the case of Captain Noddings, we are told, "No signs of life appearing when taken up, the men were heaving him again into the sea; but his servant begged earnestly they would use endeavours for his recovery. After some efforts, they were again preparing to throw him overboard, but he prevailed on them to suffer the body to remain. In the morning, symptoms of *returning animation* were perceived, and, by the careful attention of the faithful sailor, Captain Noddings was perfectly restored, and is now safely arrived in Hull."†

* SINGULAR CASE. — About a fortnight since, a woman, aged 60, in the workhouse belonging to Greenwich, was suddenly struck with apparent death, and was ordered to be buried on the Sunday following: accordingly, she was put into her coffin, and taken into the place where the dead are kept till buried; but, on Saturday morning, the doctor of the workhouse going to look at her, saw symptoms that induced him to forbid her burial that day. He visited her on every day after till Friday, leaving the same order; but, to the astonishment of every person, on Friday, about the same time she had been taken on that day week, she suddenly rose up in her coffin, and is still alive.

Bath Herald, June 23, 1798.

† See HUMANE SOCIETY'S REPORT, 1798, p. 36.

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To prevent, therefore, the semblance of death being ever again mistaken for the reality, nothing more is required, after suitable means have been tried in vain, than to wait till incipient putrefaction, the only certain test of the entire abolition of life, appears, and from which, under proper restriction, no danger can possibly arise to the living.

The first stage of putrescency, then, is distinguished by an unctuousity of the humours, which, exuding through the pores, forms a perceptible clamminess upon the surface of the body; while the vapour that exhales is carbonic acid gas, accompanied with a faintish or slight cadaverous odour, which marks with precision the point of time for interment. Whereas, in the second stage, the vapour that emanates, is manifestly alcalescent, joined to a highly putrid and offensive odour, which alone can prove noxious to the attendants. The putrid exhalations from living bodies, in cases of gangrene and sphacelus, proceeding from vital motion and heat, cease after death as soon as the body is cold, and therefore the two cases are distinct, and cannot easily be mistaken.

The late discovery of nervous electricity, (mentioned in my INQUIRY,) as it exhibits the power of renewing the lost influence of the nerves over their respective muscles, by certain metallic conductors, it seems to bid fair towards affording us a *new* test of latent irritability, and, consequently,

of

of the presence of vitality. But how far this principle alone may, in a matter of such nicety, serve to point out the line that separates the dead from the living, with sufficient precision to regulate our conduct, time alone can determine.

Already it has opened a new and curious field of inquiry, the product of which, when farther explored, may one day prove interesting to the healing art.

To conclude. — Since the various accidents and fatal disasters of which we have been treating spare neither old nor young, but, like the scythe of Time, cut down youth and beauty in their bloom; converting, in a moment, scenes of mirth and festivity into tears and lamentations; and plunging whole families, in the height of prosperity, into the depth of affliction; much might still be added, were it consistent with the brevity of our plan.

Should, however, the present short sketch, by awakening caution, tend, in any degree, towards the preservation of the human species or the alleviation of their misfortunes, it will afford the Author the most sincere and heartfelt pleasure.

THE END.

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