

ON DISINFECTANTS.

BY A FAMILY DOCTOR.



PLAIN language, a disinfectant is some substance that has the power of destroying evil odours and gases, and purifying the atmosphere from poisons and germs capable of producing disease. A disinfectant, too, may not only be a deodoriser, but a decomposer of the substances from which the bad smell arises.

Now the benefits that arise from cleanliness, ventilation, and disinfection can hardly be over-estimated. In the midst of life we are in death, and death and decay are continually going on everywhere around us, and the air we breathe is too often laden with mephitic vapours and noxious emanations. Especially is this the case in many of our largest cities, at all events in their poorer districts; and the high death-rate therein, as well as the feeble constitutions of their inhabitants, may thus, partially at least, be accounted for. I could mention many such towns, but Glasgow and Aberdeen, which I recently visited, first occur to me. The former of these is supplied with the purest water in the world, but the death-rate is high, and the lanes and closes, or "pens," of both cities are vilely filthy, and almost impassable to all but those who dwell therein. Indeed, those good people, ladies mostly, whom nothing will restrain from visiting the sick, never enter these terrible avenues without a bottle of smelling-salts, or a handkerchief sprinkled with eau-de-Cologne, held to their nostrils. In those houses where the water-closet system is adopted, these places are so constructed that, although they are used by several families, anything like thorough ventilation is quite out of the question. How then could the death-rate be otherwise than high? Residence in a pestilential atmosphere cannot but weaken the health, and of all legacies to leave to one's children, an enfeebled constitution is surely the worst. And yet matters might be so easily mended, by attention to cleanliness and disinfection. Now most disinfectants cost money, but there is one that does not, and I am happy to say it is the best and the simplest, and always at hand, and its name is PURE FRESH AIR. In the presence of oxygen, the chief constituent of pure air, miasma becomes *non est*, and the most deadly disease-germ loses its own existence. A gale of wind can destroy the cholera, but in a still atmosphere this plague rides rampant, and the victims it claims are legion.

Yet what a bugbear do not most people make of this same fresh air! What is really their best friend is treated as a foe; their very windows are often constructed purposely to exclude it, or if they are ever opened it is only to be pulled down with gingerly hand, a little bit at the top. Regarding respiration there are one or two facts that should never be for-

gotten: first, that we inhale oxygen—the life-giver—and exhale carbonic acid gas from our lungs, which gas is a deadly poison; and secondly, that a person in ordinary health requires every hour over 1,500 cubic feet of fresh air; out of doors only can he get this, but the rooms in which he lives and eats and sleeps ought to contain an atmosphere as nearly approaching in purity to that of the open air as possible. Depend upon it that sleep taken in a large, well-aired room, is ten times more refreshing than the heavy uncertain slumber obtained in a close and stuffy apartment. I have cured more than one case of nervous headache in young people, by ordering their bed-room windows to be well opened at night. The only danger is, of course, from draughts; but this may be avoided by placing the bed in a corner, and by covering the body well up. In most houses the chimneys form the ventilating shafts, and it is important that these should never be stopped, with bags of shavings or anything else, as is the too common and most unhealthful custom. The bed should be as high as possible, because carbonic acid gas is heavier than common air, and falls downwards to the floor. Up-stair bed-rooms are more healthy, for the same reason, than those on the ground floor.

Now if we remember that the more the infectious effluvia that arise from the sick are diluted, the less dangerous do they become, and the less likely to spread the disorder, we can see at once how valuable a thing is fresh air in the sick-chamber. It ought, therefore, to be perfectly ventilated by means of a little fire in the grate, and the occasional wide-opening of both doors and windows. Care should at the same time be taken lest the patient catch cold, by having him well wrapped up. But it is seldom while a room is being aired that a sick person takes cold; it is more often through getting up for a moment or two, without taking the precaution of throwing some kind of wrap around the shoulders. Every medical man knows, to his sorrow, that thousands of sick people every year lose all chance of getting well, are in fact hurried into their graves, through the ignorant, if kindly meant, assiduity of their friends and attendants, who carefully cover up every chink or cranny through which a breath of air might creep.

Having now told you what is the best disinfectant, I may go on to mention others; remember, however, that the influence these exert is only local, and, moreover, it does not last long.

The principal uses, then, to which disinfectants are put, are for destroying the poisonous emanations from cesspools, drains, water-closets, stables, dog-kennels, and cattle-sheds, as well as the contagious and infectious gases, &c., arising from the sick-room and the clothes that have been used by people ill of fever.

In addition to proper and thorough ventilation, there

is no better purifier of the air of sick-rooms than the red salt called permanganate of potash. About a tea-spoonful is mixed with a quart of water, and this is placed here and there in shallow dishes, and also sprinkled in corners, or vapourised.

Water slightly reddened with this solution may be used for washing the hands, for the bath, and for washing down wood-work, furniture, floors, &c. In all diseases where there is much spitting it is a bad plan to use handkerchiefs, which is too often done; a basin should be used, and in this basin water well reddened with the permanganate of potash. It ought to be observed, by-the-by, that as soon as the water loses its bright red colour, and becomes brown, it is inert and needs renewing. Eighty grains of this salt added to a pint of pure water form the officinal solution, from ten drops to a small tea-spoonful of which should be given now and then, mixed with a little water, in fever cases where the motions are very offensive, as well as in cases of consumption, and disease of the chest generally when the breath is impure. The solution is also used as a purifying and healing gargle, and as a wash to sores. A little of the solution may be added to drinking-water, to render it sweet and wholesome, just enough to give it a faint pink tinge. Foul linen may also be with advantage well soaked in water, in which half a wine-glassful to a gallon has been mixed—only soaked, however, and then rinsed out in clean water, else the articles will get stained. An ounce of the salts of sorrel added to a gallon of water will remove the stains from linen. The permanganate of potash is so good and handy a deodoriser, that no house should be without it. A solution of it may be used to disinfect closets, but there are cheaper substances that will do as well. Meat that has hung too long may be rendered sweet and wholesome, by being washed in water reddened with this most useful salt.

Clothes that have been removed from the sick should be at once plunged into a pan or tub containing water mixed with a little chloride of lime, another capital and very cheap disinfectant. The strength should be about an ounce of the chloride to a gallon of water. Linen, however, must quickly be wrung out therefrom and placed in clear water. Rags that can be spared should be burned after use.

Never under any condition use, or allow to be used by the sick, a chamber utensil without a lid. The best disinfectant for these articles is the sulphate of iron, usually called green copperas; a pound of this should be well dissolved in a gallon of water, and a little of this poured into the utensil every time it is used, while about half a pint should be poured down the water-closet as frequently as it is visited.

While we endeavour to keep the air of the sick-chamber pure and sweet, we should at the same time try to isolate it from other parts of the house, to prevent the spread of infection—I am, of course, presuming that the ailment is of a contagious nature—and for this purpose a sheet ought to be hung in front of the door, and frequently sprinkled with a solution of carbolic acid,

the strength being an ounce of the acid to a quart of water. This same solution, or probably one a little stronger, does well for the purification of bed-pans, night-stools, the washing of floors or furniture, and also to pour down the closet and the sink. Carbolic acid is a capital antiseptic, and a bit of lint soaked in a solution of it is a capital application to wounds and sores. Some care is needed in the mixing of it; the acid should be added to the water, which should be warm, though it need not be hot, in a large bottle or jar; this must then be well shaken. Carbolic acid, like most other disinfectants, is a poison. Never, therefore, let it stand among medicine or wine bottles; and have it properly labelled. Drains, open cesspools, offensive ditches, &c., may be disinfected by chloride of lime, one pound of which is capable of purifying a thousand gallons; but such places should be speedily seen to, and either cleaned thoroughly or removed entirely. The chloride of lime, two ounces to a gallon of water, also does well for sinks, and to wash furniture with.

Dry earth has been known as a disinfectant for thousands of years, and, indeed, I am not quite certain that the earth-closet system should not entirely supersede the water. However, any heaps of refuse that cannot be at once taken away should be quickly covered with earth, and if to it is added some charcoal or quicklime so much the better.

Heat may be called a disinfectant, whether in the shape of hot water or hot air. The linen of the sick of fever should not only be carefully washed with plenty of soap, but it should be boiled, and those portions of the raiment that cannot be so treated, should be exposed to hot air at a temperature not less than 250° Fahrenheit, while the useless garments of fever patients should be burned.

It sometimes may be thought prudent to thoroughly disinfect a room, after a case of death from some infectious disease; and on taking a new house, the rooms should not only be washed and scrubbed, but otherwise purified. In this case, let disinfection be done first, and the washing afterwards, and both before the furniture is put in. There are two good plans of effecting this: the chimneys being stopped and the windows closed, place in the centre of the floor a few ounces of the black oxide of manganese, and nearly cover it with hydrochloric acid, or a simple plan is to suspend a plate or dish on a pair of tongs over a bucket of water—this for fear of fire—in the plate place some small pieces of brimstone, which you must well ignite by means of some live coals. In either case the door must be shut for five or six hours, by which time everything deadly will be dead.

There are many other disinfectants in use, such as the chloride of zinc or soda, and the chloride of potass; I think, however, I have mentioned the most generally useful. Let me conclude this paper by repeating, because I want to impress it on you, that FRESH AIR is the best disinfectant in the world, also that scents and perfumes have not the slightest power to destroy any poisonous gas or dangerous odour.