

A GUIDE TO HEALTH.

Scientific Disinfection, and the Choice of a Disinfectant.

CHAPTER IV.

With regard to the science of disinfection, Kingzett makes the following remarks, though I alter the style of language somewhat, for savants are apt to forget that the whole world is not quite so learned as they are.

Many infections and contagious diseases are caused indirectly by the presence in the human body of what are termed microbes, or micro-organisms, that is to say of minute—microscopic—germs, which are supposed to grow, multiply and flourish at the expense of the human system, giving rise to all the symptoms and all the terrible complications which characterise these diseases.

These disease germs or microbes are widely distributed in nature, and by way of illustration it may be stated that the well-known process of putrefaction depends upon the presence, growth and multiplication of certain classes of these germs in the substances which are affected. The term "microbes" includes not only the fully developed organisms, but the spores or spores from which such organisms spring; and while the latter may be easily destroyed by certain chemical re-agents and otherwise—by "Sanitas" and heat, for example—their spores—call them seeds or graftings—are endured with the utmost vitality. These last are found everywhere, and it is practically impossible to destroy them until they have passed into their fully developed stage—become microbes, in fact.

When certain classes of chemical re-agents, called antiseptics and disinfectants, are added to putrid mixtures, the death of those microbes or organisms that have caused the commencement of the process of putrefaction is brought about. The reason why such application remains efficacious is either that the presence of these antiseptics or disinfectants prevents the development of further spores into their state of maturity—microbes—or else that they kill these microbes as fast as they are developed. The spores themselves, or seeds or grafts, are often times not killed by such re-agents, but immediately they reach the mature stage they are destroyed.

Just a word or two parenthetically here. When one remembers that all contagious diseases owe their origin to different kinds of microbes or organisms afloat in the air, or swimming in the excretions and secretions, it is obvious enough that if we can find and apply a disinfectant capable of destroying these organisms, we as effectually stamp out or check the further spread of the disease as we do when shutting up the typhoid polluted well.

"Again," continues our authority, "chemical re-agents or so-called disinfectants act in various ways, some substances having the property of asphyxiating microbes by the oxygen which they—the disinfectants—contain, others acting by preventing the access of oxygen to the microbes, others behaving as direct poisons to the organisms, and others, again, by rendering the medium in which the organisms float unfit for their further existence and development, so that they die off in consequence."

This last named change may be effected by the removal or chemical alteration of one or more of the particular substances, upon the presence of which the life of the micro-organisms or microbes depends.

It is believed by the best authorities that infectious diseases are directly caused by the action of chemical poisons generated by micro-organisms, so that no substance can be called a true disinfectant which does not either prevent the production of these poisons, or destroy them when formed.

It may, therefore, be taken for granted, that if chemical re-agents can be obtained, which will on the one hand prevent organic matters from passing into a state of putrefaction, and which will on the other hand destroy the poisonous products that are generated thereby, we have in these chemical re-agents reliable and certain disinfectants.

I shall now briefly mention a few of the most common disinfectants that have been in use for many years—not, be it observed, by way of invidiously comparing the one with the other, but in order to guide us in our choice of the best or most generally useful.

I. HEAT. This is used in chambers either in the form of steam or hot air. It is supposed that no microbe or spore could resist a temperature of 220° F. dry heat, or 212° F. steam. The system of disinfecting by heat may be useful in barracks, in hospital, sanatoriums, &c., but can hardly be available in the private household. Bedding, bed clothes, mats, rugs, and carpets are so disinfected, but the heat penetrates very slowly. Steam or moist air acts more certainly than a dry heat.

II. DRY EARTH. This is a disinfectant and deodorizer that has been known for ages, ever since the days of Moses. The lower animals also make use of it. Concerning earth closets, I have nothing but good to say. In my country house we prefer them to water closets, and all summer and autumn of this year (1889), we have used them in our camp at Deal. As an additional provision against foul air, and a certain security, we use "Sanitas" Powder.

III. CORROSIVE SUBIMATE, OR PERCHLORIDE OF MERCURY. Though a very excellent and exceedingly effective disinfectant, its terribly poisonous character precludes its use, except under the eye of a professional man.

IV. CHLORIDE OF LIME. Long known as a very efficacious disinfectant, though of restricted utility, on account of its corrosive nature. It is an aerial disinfectant, chiefly acting by giving off chlorine gas. A pound to the gallon of water is used for pouring into drains and cesspools, an ounce to a gallon for steeping linen, &c., in. The smell is unpleasant, and it must not be forgotten that chlorine gas has bleaching properties, so it hardly commends itself as a pleasant disinfectant to the fair sex.

V. CREOLIN. This is the active principle of several proprietary articles. It is not poisonous, but it is sticky; its smell can hardly be called Rimmellian. Moreover—and this is a strong objection to my mind—it soaks up oxygen from the air, instead of imparting oxygen thereto.

VI. CHLORIDE OF ZINC. This again is the active principle of Burnett's Disinfecting Fluid. It is a reliable disinfectant for

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many purposes, but it is also a powerful poison.

VII. SULPHATE OF IRON. Though cheap enough and useful for drains, water closets, &c., it can never become a favorite in the household. At all events it has no general use.

VIII. STUPIDUOUS ACID GAS. This gas is produced by burning brimstone in a saucer placed on iron rods across a pail of water, and is often used for disinfecting sick rooms, and for destroying vermin. It tarnishes gilding, however, and rusts brass work, &c., and it has also bleaching properties; so if used, things left in the room must be guarded. It also interferes with proper respiration, and is a very offensive gas to breathe.

IX. CHARCOAL. As a disinfectant has not a great deal to recommend it. It is supposed to act by absorption of foul air.

X. PERMANGANATE OF POTASH. This is the active principle of the disinfectant sold under the title of Condy's Fluid. It is useful as a disinfectant and deodoriser in a good many ways. It gives off oxygen, it purifies tainted meat, &c., but it stains linen, and stains the hands. The permanganate of potash can itself be bought cheaply enough at the druggists. If, then, you get pure water and mix it with the crystals till well or deeply reddened, you have a disinfectant solution all ready.

XI. CARBOLIC ACID. This is a very good disinfectant for a variety of purposes, but it is poisonous, and its odour is objectionable to most people.

XII. THYMOL. Introduced of late years, it is, however, almost insoluble in water.

XIII. PERFUMES. I must warn the reader against supposing that all scents and perfumes are disinfectants. The most that Eau-de-Cologne or eau-de-anything-else can do is to diffuse a nice smell throughout an apartment. Ladies who venture into unwholesome streets and dens, or cellar houses in the back slums, are often seen with their handkerchiefs held to their faces, and presumably wet with some pleasant perfume. This, however, gives them no safeguard against infection. On the other hand, that most pleasant preparation called "Sanitas" Antiseptic Toilet Fluid is both a perfume and a disinfectant combined.

FRESH AIR, or proper ventilation, and perfect cleanliness, must be adjuncts to all sorts of disinfectants. This should never be forgotten. And now we have to look around us for what may be called a generally useful household disinfectant.

I think if I were to ask some British mother-families what she really desired that particular disinfectant to be, the pith of her reply would be somewhat as follows:

1. The household disinfectant and antiseptic should be a perfectly reliable one, a chemical re-agent capable of destroying those microbes we speak of, and their poisonous products, thereby stamping out infection and contagion, and preventing the spread, throughout the whole household, of trouble when it comes.

2. It should be non-poisonous. Fluids will sometimes get in children's way, and if they do not hesitate, when left alone, to take a drink out of the boiling kettle, they would hardly be prevented from swallowing a disinfectant, especially if it looked pretty.

3. It should be of pleasant odour, not necessarily a perfume in the strictest sense of the word, but capable at all events of diffusing a smell that is pleasant, and that appeals to the senses as healthful. Some disinfectants may be effective enough, while at the same time they leave a smell in the room that suggests hospital wards, and the presence of sickness, and thus effectually scare one's friends away.

4. It is very important that this household disinfectant shall leave no stain, either upon bed clothes, carpets, or furniture.

5. It must be presentable in different forms, all having the same reliable qualities, because we shall have to use it sometimes as powder, sometimes liquid, and sometimes as soap.

6. It should freshen the air, and not take away from it any of its vital oxygen.

7. Lastly, it must be cheap.

There is such a household disinfectant, and it is "Sanitas," but its nature and properties must be discussed in another chapter.

"Strange," said Mrs. Jones, as she looked up the house, "how old fashions come in again." "What is it now?" asked Mr. Jones, yawning. "Why, Mr. Simmons passed just now, and I guess he thought it was you he was talking to, for he called out that he was going down street to get a night-cap." And Mr. Jones didn't enlighten her, but he wished, oh, he wished, he had gone shopping with Simmons.—Free Press.

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MEN AND WOMEN TALKED ABOUT.

The Prince of Naples, who is visiting England, is only a little fellow, but he is as smart as a mustard plaster and as full of soldierly airs as a Life Guardsman. He is thoroughly enjoying himself, and is well pleased at the courtesies which are being shown to him as the guest of the Prince of Wales.

Mrs. U. S. Grant has all the love letters written to her by the general, then Lieutenant Grant, and said of them recently that during the four years of his absence every mail brought her a letter, every one of them full of sweet nothings, love, and war, and now and then some pressed leaves and flowers.

The secret of Mr. Browning's manner, where it is involved, harsh, and crabbed, is not, probably, very far to seek. It was part of his nature; he thought in that way, he wrote as he thought, and some even of his familiar letters are extremely hard reading.—Contemporary Review.

The French preferred De Bienne to Turgot. The English will probably prefer Lord Rosebery, with his fascinating case, to John Morley, with his tiring sense of duty. We know that Mr. Morley's speeches improve us; but it is the weakness of a democracy not to like being improved.—British Weekly.

Mrs. Alexander, the British novelist, is of Irish parentage. A pen picture represents her as tall, handsome, somewhat portly of late years, endowed with a freshness of complexion that has defied middle age, with fair hair and blue eyes; she is a striking figure anywhere, a charming companion and an admirable conversationalist.

Rev. S. Baring Gould, the novelist, is nearly sixty years of age; his face is remarkably beautiful, reminding one of St. John as depicted by some of the old masters. He has a very intimate knowledge of the laboring class and the heroines of two of his strongest novels, *Mehalah* and *Red Spider*, are "daughters of the people."

English statesmen have seldom been killed by hard work, though many of them have shortened their lives by hard living. The two hardest workers in the long roll of English First Ministers, Lord Palmerston and Mr. Gladstone, have been among the longest lived. Lord John Russell's originally frail constitution carried him through more than eighty years, of which three-score were spent in active toil.—World.

Bishop Wilberforce once came near going to strike himself, and by a threat of so doing he carried a point. Entering a crowded church in which he was to preach, one day, he escorted inside a lady whom he met at the door, but who complained that there was no room. To his order to the beadle to find her a seat, that functionary replied that it was impossible. Thereupon the bishop declared: "Oh, if you don't, I won't preach!" A luxurious empty pew was quickly discovered.

Lady Burton, Sir Richard Burton's widow, has just sacrificed a manuscript of her husband's for which she had been offered 6,000 guineas. It was his last work and was called the "Scented Garden." He was in communication with English publishers relative to bringing out the book just before his sudden death. After mature reflection, Lady Burton reached the conclusion that the work would do a great deal of harm and little or no good. She accordingly burned the manuscript.

Wendell Phillips was riding in a railroad car, when he was addressed by a man of such roundness that he seemed to carry everything before him. The man asked Mr. Phillips what was the object of his life. "To benefit the negro," was the bland reply. "Then why don't you go South to do it?" "That is worth thinking of. I see a white cravat around your neck; pray, what is the object of your life?" "To save souls from hell." "May I ask whether you propose to go there to do it?"

Henry Labouchere, the famous free-lance London editor and member of parliament, is a little fat man who a correspondent who recently saw him describes as sitting in a leather chair, twiddling a grizzled beard. "He is a millionaire, a radical, an insufferable wag. He has an exuberant animosity for all governments; he is the bad boy of the house of commons; the fat, licensed, wicked little jester of the English press. An oily, pachydermatous little man; wayward and whimsical; staunch and true to his friends; a man who gives thousands in charity."

Justice Field is the scholar of the United States supreme court bench. Besides his Greek and Latin he is thoroughly versed in modern Greek and Turkish and can converse fluently in French and Italian. His library is one of the finest in Washington, and he himself is probably the most interesting man in public life at the capital. His extensive travels, combined with his long experience of life and his wide reading, make him a most agreeable and entertaining companion. In personal appearance he is tall, with a somewhat stooping figure and a large head that looks like Shake-speare's.

In a letter from Prince George of Greece to his father George I. of Greece, the young man tells of his adventure in Japan, and refers to the Czarowitz as "Nicky," and to the Czarina as "Aunt Minn." He says that after his rescue of the Czarowitz, the Russian officers "played ball" with him, which he explains is their method of showing their joy. When the Crown Prince of Russia was in this country shooting buffalo, he embraced General Phil Sheridan, who had brought him to the hunting-grounds, and carried him fifty yards in his arms, so great was his delight over killing such big game.

"Prisoner at the bar," said the judge, "is there anything you wish to say before sentence is passed upon you?" "No, my lord, there is nothing I care to say; but if you'll clear away the tables and chairs for me to thrash my lawyer, you can give me a year or two extra."

"Ah!" exclaimed Scrimper, as his eyes fell on a copy of Venus of Milo, "now that's my idea of what a woman should be." "Yes," replied Brown, "that is considered a model of beauty." "Oh, it isn't that; I was thinking what a saving in gloves it would be to have a wife like that."—Boston Transcript.

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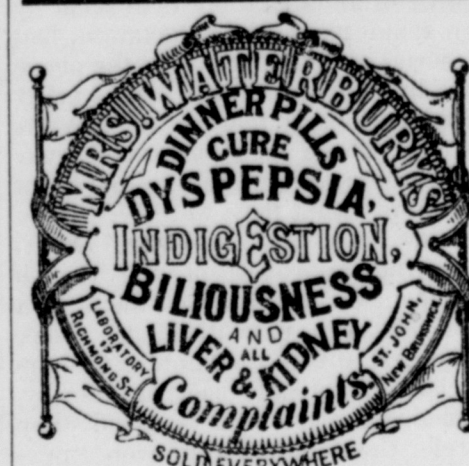
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