Sterilization and Disinfection.

The following interesting paper on "Sterilization and Disinfection" occurs in a book recently published on the "Bacteriology of Every Day Pratice," by Dr. J. C. Symes, D.P.H., edited by Dr. David Walsh.*

The two methods commonly employed are disinfection by heat and by the use of chemical bodies. Of these, the first is by far the more trustworthy. It is now a well established fact that the only efficient method of dealing with clothing, and with fabrics generally, is by treating them with steam, under high or low pressure in apparatus especially provided for the purpose. Dry heat, having only slight penetrative power, is of little use for this purpose. Whilst bacilli and spores are killed by exposure to steam for five minutes at 212° F., dry air only accomplishes the same in four hours at a temperature of 220° F.

The common practice of fumigation by sulphurous acid or formalin vapour, as applied to the disinfection of rooms, is, as a rule, a futile proceeding, for even if the gas be present in sufficient proportion to have a bactericidal action, it is found that the slightest protection is sufficient to preserve the organisms from the action of the fumigant. It is probable that in England it will soon be replaced by the system of spraying all infected surfaces with antiseptic solutions, as is now the practice on the Continent . . . . . There is much misunderstanding as to what substances are true disinfectants, that is, having definite bactericidal powers. Many of the solutions in popular favour are from their nature or degree of dilution simply antiseptics which arrest the multiplication of micro-organisms, or deodorants, and serve to mask effluvia. The following are useful solutions for working purposes, and if brought into intimate contact with the materials and allowed to act for some hours, may be trusted as disinfectants. Carbolic acid, 5 per cent. solution in water. Perchloride of mercury, 1 part in 1,000 of water. Formalin, 1 per cent. solution in water. Of these, formalin is to be preferred on account of its greater penetrative power. In using disinfectants, the points to which attention must be paid are quantity, concentration, and duration of exposure. It is useless to attempt the disinfection of drains and sewers, for instance, by the addition of disinfective powders or solutions, as these speedily become diluted and inert in the presence of the large quantity of fluid. Similarly, the administration of disinfectants, such as creosote, salicylic acid, carbolic acid, or the supho-carbolates, by the mouth medicinally, as is frequently done in enteric fever, in gastro-intestinal or other disorders can in no way render the tissues and tracks aseptic, although to a limited extent they may act as antiseptics and check the undue multiplication of micro-organisms exciting fermentative changes. Certain pathogenic organisms, such as the B. typhosus and B. coli, can flourish in media containing as much as 1 per cent. of carbolic acid.

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Disinfection of the Patient's Skin.

A portion of the skin may require to be sterilized before taking a specimen of the blood, before making an incision to open an abscess, or before inserting an aspirating needle. It is first to be scrubbed with a nail brush and soap and water. Potash soap is the best for this purpose. The clean surface is then defatted by rubbing with a piece of cotton-wool, soaked in ether or turpentine. It is then disinfected by the application of carbolic acid (1 in 20) or perchloride of mercury (1 in 500). If time permit a pad, soaked in one or other of these solutions is fixed over the spot and allowed to remain for three or four hours, but if this cannot be done care should be taken that the solution is well rubbed in. Finally, the excess of disinfectant is washed off with absolute alcohol. Each stage of the process should be gone through thoroughly and methodically, with the knowledge that any neglect may lead to serious error in diagnosis and treatment.

Disinfection of the Operator's Hands.

In making films and cultures from the blood, it is important that the operator's hands should be aseptic, as much so, in fact, as if he were about to perform a surgical operation. The method of preparing the hands for operation recommended by Lockwood is generally adopted.

The nails should be short and trimmed. Scrub the hands with soap and hot water for three minutes. Soak them for two minutes in a solution of 1 in 500 biniodide of mercury, and then in 75 per cent. alcohol, to which a little water has been added. Wash them finally in biniodide of mercury lotion 1 in 2,000.

previous page next page