Looked at as antiseptics, chemicals are of great value, but from a germicidal point of view their action in surgical sterilization is very limited, and though nobody denies that certain chemicals are germicidals in proper concentration; still they have no immediate action and the bacteriologist has not as yet been able to definitely determine the germicidal action of any given solution on pure cultures of surgical bacteria, as it is impossible in *most* instances to eliminate the chemical before the test thread or whatever is employed is transferred to the culture medium.

Under the best of circumstances chemic sterilization is not only very slow, but it is also injurious to our surgical instruments and materials, and unpleasant to the surgeon, as well as even dangerous to the patient.

Thermic Sterilization.

Is more complicated and more expensive than chemic, as fire and apparatus are necessary; but what little we lose in money is more than gained in time, since thermic sterilization acts in as many minutes as the chemic does in days, and those who prefer antisepsis to asepsis cannot possibly object to asepsis itself, which they can easily and readily supplement with antisepsis whenever they may choose to.

Skin Sterilization.

Cannot be effected through the entire thickness of the derma, whose surface must be so well prepared by shaving, washing, scrubbing, scraping and brushing, that scraping will not develop any cultures.

In cleansing the skin mechanically it is but common sense to use the warmest and cleanest water possible, and to shave off any hair that may come within the field of operation.

After the first series of shaving, scraping, and thoroughly washing with soap and hot water is over (1) the English saturate the surface with turpentine and again scrub with soap, and a mixture of 1 in 20 carbolic and 1 in 500 sublimate solutions; but the Germans dry the part with sterile gauze after which they saturate it with 80 per cent. alcohol and brush it over with 1 in 2,000 sublimate solution; the French use ether in place of alcohol.

The turpentine, alcohol, or ether, is employed to further mechanical disinfection by dissolving impurities of various kinds and helping to remove grease and fatty matters from the skin; but turpentine is not only the cheapest aud most convenient of the three, but it is also the best as in return for removing its impurities, it varnishes the skin and covers up the bacteria more perfectly than does lanolin, though if lysol is going to be the antiseptic employed it must be used before the impregnation with turpentine, as it takes no effect when the skin is varnished.

The operator cannot be too careful of the absolute cleanliness and almost perfect asepsis of his hands, and the knife ought to be cleansed anew (or a fresh knife used) after the skin has been cut through, while the best method of surgically sterilizing the skin is:—(1) shave the operation field, (2) with a stiff sterile brush and plenty of hot sterile running water scrub the skin for several minutes, (3) cleanse the nails, (4) repeat the scrubbing using lysol, sublimate, carbolic acid, permanganate of potash or other antiseptic solution, (5) dry the skin with sterile gauze. (6) impregnate it with turpentine and (7) remove the oil with sterile warm water or a mild antiseptic solution. It ought to take 10 minutes to do all this.

Sterilization of Instruments.

While the English School merely immerses the instruments for two or three hours (before the operation) in a 1 in 20 carbolic acid solution, the German boils them for 5 minutes in a one per cent. sodium carbonate solution, and the French includes prolonged boiling in 0·5 per cent. potasium carbonate solution, dry heat and a variety of other methods.

The French are extravagant in their sterilization of surgical instruments, and while they speak of surgical they really aim at bacteriologic sterilization. Some boil in the presence of potasium carbonate while others use boiling oil, vaseline, glycerine and such like. But these methods are superfluous and must give way to the German method (of boiling the instruments for a few minutes in weak alkali solution) which is simple, convenient, absolutely reliable, and can be done during the time the skin is being prepared for operation.

Many find that boiling water makes the instruments dull and rusty. This is true; but if rain or distilled water to which a few drops of Liquor Potassæ have been added, be employed, and the instruments not immersed till the water is boiling nor kept soaking for more than two to five minutes, they come out bright, clean, sharp, and aseptic, and will not rust readily. Rusting can further be guarded against by wrapping the cutting instruments up in dry cotton.

Whenever thermic sterilization can be used, it is imperative to choose it in preference to all other methods on account of its mathematical accuracy; though where it is not practicable chemicals may be substituted for it, as they are better than nothing.

In hunting for a safe, quick, chemic method, the very much over-rated agent *formalin* was brought to the front too conspiciously; but time will show that though it may stick a long while to articles exposed to its action and thus give an exalted idea of its sterilizing superiority, formalin has no real advantage over carbolic acid or other chemicals.

previous page next page