

permanganate, sulphur dioxide, and chlorine, agree with those arrived at by himself. Then he referred to the indirect method of testing disinfectant power. A putrescible substance will not begin to putrefy so long as the access of septic microzymes is prevented; the degree of putrefactive change is proportionate to their number and reproductive activity. Lastly, the putrefactive process may be checked or arrested at any point by checking or arresting their multiplication. Any agent or condition that will prevent the growth and development of septic microzymes will prevent putrefaction, and is therefore an antiseptic. We have to distinguish between such agents—*e.g.*, cold—as stop the reproductive activity of microzymes (simple antiseptics), and such as deprive them of life (germicides). All germicides are necessarily antiseptic; but it by no means follows that all antiseptics are germicides. A moderately low temperature is effectively antiseptic, while the lowest temperatures hitherto obtained have failed to show germicide power. Carbolic acid is highly antiseptic in relatively small quantities; it does not become a trustworthy germicide till it is present in the proportion of at least two per cent. The frequent attempts made to employ antiseptics as a measure of disinfectant power have all ended in failure. But there does seem to be a relation between germicide and disinfectant action sufficiently close to enable us to use the one as an indirect test of the other. For instance, the contagium-particles and septic microzymes are both capable of lying dormant for long periods of time without forfeiting their specific properties; both multiply very rapidly when introduced into suitable media, and the multiplication of both is attended by a constant and characteristic train of physical and chemical changes in their environment; both appear to thrive in alkaline and to perish in acid media; both are destroyed by heat; both seem to enjoy complete immunity from the effects of extreme cold. The differences between the media through which the contagium-particles and the microzymes are respectively disseminated might have something to do with the difference in their susceptibility. The microzymes originally employed in experiment had all been bred in Cohn's solution—consisting of small quantities of ammonium tartrate, magnesium sulphate and potassic phosphate dissolved in distilled water. The liquid is perfectly neutral in reaction. The virulent liquids employed were mostly alkaline, charged with albuminous principles and saline ingredients. The more nearly the medium containing the infective particles was made to approach the type of pure water, the more easy became the task of disinfection; on the other hand, by suspending microzymes in albuminous and highly alkaline liquids they became less and less amenable to the influence of germicides. This drew attention to the paramount importance, as regards disinfection, of the media in which infection-particles are imbedded or suspended. The difficulty of annihilating the reproductive power of septic microzymes depends primarily on the medium in which they happen to be contained. Germicide power may be taken as a measure of disin-