

least 2 per cent. of humidity is necessary for the development of the germs. Soil rich in organic material is most favorable to this development.

Causes of death of the pathogenic germs exist in the soil. The principal cause is exsiccation. Koch and Duclaux have demonstrated that this is especially hurtful to the micrococci, and here, according to Koch, is the explanation of the fact that micrococci are relatively rare on the superficies of the soil. The cholera bacillus dies rapidly under exsiccations. Netter fixes three weeks as the extreme limit at which the exsiccated pneumo-coccus preserves its virulence.

The two most potent causes of destruction which the microbes encounter are the saprophytic bacilli and solar light.

The saprophytic bacilli are in continual strife with the pathogenic microbes and have generally the advantage. The bacillus of tetanus is exceptional and may develop favorably in the presence of other species.

Solar light is injurious to very many bacilli. According to Duclaux it is the most universal means of sanitation, and the most economical and potent to which public or private hygiene can have recourse.

The turning up of the soil liberates pathogenic germs, but when the soil is not disturbed for a long time a colossal germination frequently goes on. Exhumation frees the bacteria long latent in the soil; hence the epidemics that follow the turning up of the ground.

Pathogenic germs leave the earth in many ways to attack men and animals. The soil which adheres to the body, to the feet of animals, and that which is carried by insects disseminates pathogenic germs. Currents of air transport superficial dust and so propagate the spores which resist exsiccation. Water also carries germs.

Ordinarily subterranean waters are on a level with the bacteriological zone. Sometimes this zone is exposed by fissures or by openings made in the earth. The walls of a well are a prolongation of the superficies and are favorable to the life of the germs.

BISMARCK'S HYGIENIC HABITS.

A correspondent of a London paper gives the following on the great ex-Chancellor's diet and its results: "At luncheon I observed that he drank nothing with his food, and asked him whether 'eating dry' were a habit of his own choice, or an article in the dietetic code drawn up for him by his famous 'Liebartz,' Dr. Schweningen. 'The latter,' he replied. 'I am only allowed to drink thrice a day—a quarter of an hour after each meal, and each time not more than half a bottle of red sparkling

Moselle, of a very light and dry character. Burgundy and beer, both of which I am extremely fond of, are strictly forbidden to me; so are all the strong Rhenish and Spanish wines, and even claret! For some years past I have been a total abstainer from all these generous liquors, much to the advantage of my health and 'condition,' in the sporting sense of the word. Formerly I used to weigh over seventeen stone. By observing this regimen I brought myself down to under fourteen, and without any loss of strength—indeed, with gain. My normal weight is now one hundred and eighty-five pounds. I am weighed once every day by my doctor's orders, and any excess of that figure I at once set to work to get rid of, by exercise and special regimen. I ride a good deal, as well as walk. Cigar smoking I have given up altogether, of course under advice. It is debilitating and bad for the nerves. An inveterate smoker, such as I used to be, probably gets through a hundred thousand cigars in his life if he reaches a fair average age. But he would live longer and feel better all his time if he did without them. At the age of seventy-five Prince Bismarck is as upright as a dart and as firm of foot as many a strong man forty years his junior. His complexion, which used to be sallow when I first knew him, is clear and ruddy; his eyes sparkle with all their old fire and brightness; his voice is mellow and sonorous; his heavy mustache and eyebrows are no whit grayer than they were twenty years ago. He looks younger than his age by a decade at the very least."

This is, doubtless, owing to the change in his habits within a few recent years.

PROFITS OF HEALTH BOARDS.—In the proceedings of the Vicksburg Sanitary Convention, recently published, Dr. Henry B. Baker, Secretary of the Michigan State Board of Health, which shows the practical benefit of boards of health. The following is a summary of the official statistics: "The record of the great saving of human life and health in Michigan in recent years is one to which, it seems to me, the State and local boards of health in Michigan, can justly 'point with pride.' It is a record of saving over one hundred lives a year from small-pox, four hundred lives per year saved from death by scarlet fever, and nearly six hundred lives per year saved from death by diphtheria—an aggregate of eleven hundred lives per year, or three lives per day saved from these three diseases! This is a record which we ask to have examined, and which we are willing to have compared with that of the man who 'made two blades of grass grow where only one grew before.'"