

an individual organism, say, for example, the cholera bacillus, gains entrance to the soil, it by no means follows that it will meet with the necessary conditions of food, moisture and temperature. If the ground were polluted with faecal matter, then this is a suitable medium, but the temperature must be between 60° and 70° F., or if the temperature be so high that drying of the bacillus takes place, this is fatal; if the soil is acid, this is fatal, nor can it grow in a water-logged soil. Another powerful antagonistic action is the growth of the various organisms of decomposition (Saprophytes). It is one of the many wise dispensations of providence that our enemies can only attack us after we have, with the most perverse ingenuity, broken all the laws which regulate health, and a visitation of cholera is a sanitary reformer needed now and again to put matters right. Although microbes may not develop and multiply in the soil for want of the necessary favouring conditions, it must not be forgotten that they may be latent for long periods, especially in the spore forms. Thus the anthrax bacilli, which form spores, may remain latent for a very long period, probably years, and finally develop when the necessary conditions are provided.

DR. RICHARDSON ON VEGETABLE AND ANIMAL FOODS.

I do not hesitate to say, observes Dr. B. W. Richardson, that this consideration brings us face to face with that system of feeding which is called "vegetarianism." We have not to consider how to avoid living on such a purely animal and natural food as milk, for example; we are not to consider how to learn to live on vegetables which contain more water than the 75 per cent. of water which is present in legs of mutton and in other similar animal foods. But we really ought to consider the question of utilizing, on a large scale, all vegetables which, in nutrient value, stand above animal products. We have also to learn, as a first truth, that the oftener we go to the vegetable world for our food the oftener we also go to the first, and, therefore, the cheapest source of supply. The commonly accepted notion that when we eat animal flesh we are eating food at its prime source can not be too speedily dissipated or too

speedily replaced by the knowledge that there is no primitive form of food—albuminous, starchy, osseous—in the animal world itself, and that all the processes of catching an inferior animal, of breeding it, rearing it, keeping it, killing it, dressing it, and selling it, mean no more and no less than entirely additional expenditure throughout for bringing it into what we have been taught to consider an acceptable form of food, the veritable food which the animal itself found without any such preparation, in the vegetable world. With the light of these natural facts filling the national mind, the tendency of all advanced scholars in thrift should unquestionably be to find out plans for feeding all the community, as far as possible, direct from the lap of earth: to endeavor to discover how the fruits of the earth may be immediately utilised as food; and to impress science into our service, so that she, in her laboratories, may prepare the choicest viands, minus the necessity of making a lower animal the living laboratory for the sake of what is just a little higher than cannibal propensities.

VENTILATION OF SEWERS.

At the congress of the Sanitary Association of Scotland, Mr. J. D. Watson, of Arbroath, read a paper on the subject of Sewer Ventilation. He said he had been instructed to prepare a report for the local authority of Arbroath upon the best mode of ventilating the drains, and for that purpose he had communicated with fifty-five towns as to the methods adopted by them. Six of these towns had no system of ventilation; in ten the sewers were only partially ventilated. In the towns where ventilation had been appreciated, the favorite method was to bring up a square shaft or manhole from the sewer, and protect it at the street surface by a cast-iron box, fitted with a lid partly open and partly closed. In eleven towns, shafts were carried up the sides of houses; in six, there were communications with chimney-stacks; in five, rain-water conductors were used for ventilating purposes; in two, the foul air was passed through charcoal placed in trays over the man holes; and in Blackburn, the sewers were connected with special shafts for the purpose of conveying the gas above the houses. Having discussed these various methods he recommended the adoption of the system of open manhole shafts pointing out, at the same time, the imprudence of allowing exhaust steam to be blown off into the sewers, for the liberation of foul gases was likely to aggravate existing dangers.