

groups—one which flourish in a temperature of about 70 degrees F.; another in a temperature of between 98 degrees and 100 degrees F. (the ordinary body temperature is ideal!); and a third group of them may grow at a temperature as high as 160 degrees F. The disease-producing bacteria belong to the second group mostly, although a few belong to the first, and to the third Dr. Andrewes attaches no particular importance.

(4) Light.—Most bacteria are killed by prolonged exposure to light, and fairly soon by exposure to sunlight.

The chief sources of infection naturally are where all these requirements are found most abundantly.

(1) Water and soil may be full of deadly infection. Tetanus bacilli are frequent inhabitants of the soil.

(2) Food is a great carrier of infection generally, and possibly the most active germ-carrier we have is milk. Scarlet fever, cholera, typhoid, diphtheria, for instance, may be freely brought with a pint of milk which has come in contact with any such infection.

(3) Sewage is an ideal breeding-ground.

(4) "The animal body likewise offers admirable facilities for their multiplication, and apart from any invasion of the living tissues. Our skins are covered by a layer of dead organic matter, which varies in thickness according to our habits of personal cleanliness, but is never quite absent . . . and it has been shown that their" (bacteria) "numbers abound in our underclothing from the time we put it on fresh from the wash till we cast it off." The inner surface of the body "is even more favourable to the growth of bacteria, owing to the greater moisture and more equable temperature."

Any of these sources becoming infected with the bacilli of any particular disease, and no preventive measures being taken against them, a widespread epidemic may arise. Fortunately, the mere presence of bacteria is not enough to actually cause the trouble. There is against it the power of resistance of the healthy tissue; infection is largely a question of the susceptibility of the person infected. "The healthy person living in healthy conditions is less susceptible, and the unhealthy person living in unhealthy conditions is more susceptible." We can check the growth of bacilli to a very large extent by thinking more about health: diminishing overcrowding; by improving ventilation in dwellings, factories, workshops, and the like, and admitting sunlight—above all, *sunlight*.

We might advantageously remember in our grumbling about the weather that rain is a factor of great importance in carrying bacteria to the ground and washing them away; snow is even more effectual. Bacteria are only accidentally carried by the air and wind; they cannot grow and multiply there.

(In writing this paper reference has been made to "Lessons in Disinfection and Sterilization," by F. W. Andrewes, M.A., M.D. Oxon., F.R.C.P. Lond., D.P.H. Cantab.—A. B.)

HONOURABLE MENTION.

The following competitors receive honourable mention: Miss F. Waters, Miss G. Campling, Miss O'Brien, Miss Macfarlane, Miss M. Robinson, Miss I. James, Miss Fanning, Miss E. F. Stokes.

Miss Waters says that infection is due to the presence of bacteria or micro-organisms in the body, which grow and increase in suitable soil, and have been carried there by the lungs, the alimentary canal, or by the skin. The infection is generally carried from one human being to another, and heat, closed rooms, and ill-health help on the growth of the germ. It may be produced by contact with an animal, or even be derived from the soil.

Miss Campling mentions as common sources of infection ashpits (organic refuse), badly drained soil, baby comforters, bites or stings, crowded and ill-ventilated rooms, sputa of phthisical patients, cats, contaminated milk or water, dustcarts, dust and dirt, dirty cooking utensils, dirty cisterns, defective drains, decayed teeth, flies, imperfect wells, oysters, stagnant pools, and tinned foods; also diphtheritic and offensive discharges, soiled dressings, dirty hands, instruments and dressings, and infectious diseases.

A NEW REGULATION.

As we find that we have had to disqualify several excellent papers by reason of their length, we propose to extend the limit to 750 words.

QUESTION FOR NEXT WEEK

What points would you observe on the admission of a new patient to a ward, and why?

Miss V. James, describing the preparation of a specimen of urine, says that the method of taking samples depends a good deal on the particular thing for which you are examining. If for reaction the sample must be quite fresh, if for specific gravity you must have a mixture of the urine passed in the 24 hours, if for albumen the same.

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