

ends or sides of the bacterium and are called flagella. It is believed that the flagella are developed from a protoplasmic film surrounding the bacterium their distribution being different in the different forms of bacteria.

Regarding the internal structure of bacteria little is known other than that they are of very simple make-up.

Of the many hundred of different species of bacteria there are but a comparatively few that are harmful to mankind. Of this class which are the cause of disease, the largest number are bacillus, and are called pathogenic, while the harmless ones are called non-pathogenic. The pathogenic species are of two classes, those which are true parasites and those which are not. By true parasites we mean those which live upon and consume the tissues of the body in their growth during which time they produce poisonous substances that may prove fatal when of sufficient quantity. Under this class may be cited the bacillus tuberculosis as a representative. The class of pathogenic bacteria which are not true parasites include those capable of living free in nature and though they develop the poisonous products during their growth in organic substances, it does no harm unless taken into the human system with the food. The poisons produced thus free in nature, ultimately become oxidized into harmless substances by their further decomposition. It will be seen therefore that only during the period between the forming of the poisons and their oxidation are they harmful. In contracting disease by inoculation with these pathogenic bacteria or germs much depends upon the physiological condition of the body at the time. If in a thoroughly vigorous state of health the tissues will be built up and the poisons eliminated before the bacteria can multiply in sufficient numbers to break down or weaken these

natural forces. As before noted there are but few harmful varieties compared to the whole, and it is safe to say, that of every hundred different species of bacteria as they exist at least 95 are in some way beneficial to us. In preventing the growth of bacteria there is usually employed one or two forms of substances existing under three names—antiseptics, disinfectants and germicides. Antiseptics are those substances which only retard the growth of bacteria, while disinfectants are substances which actually destroy the cause of infection and are equivalent to germicides, which kill the germs. Disinfectants are usually antiseptics if used in a proper way, but the latter are not in many cases disinfectants. There is another class of chemical substances, usually strong oxidizing agents, which will convert the strongly smelling products of bacterial decomposition, into inodorous ones. These are called deodorizers and may, or may not be disinfectants. It is useless to attempt to disinfect the air except in tightly closed rooms and even then to be effective, it requires a quantity or strength of disinfectants in which it would be impossible for a person to live. Most of the so-called disinfectants in the market, when diffused through the air of an ordinary room have no action upon putrefactive bacteria.

"American Bee-Keeper."

#### SOFT HONEY CAKE.

One cup butter, two cups honey, two eggs, one cup sour milk, two teaspoonsfuls soda, one teaspoonful ginger, one teaspoonful cinnamon, four cups flour.

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