

that bacteria do not exist in the atmosphere. But their existence there in an active form strictly depends on moisture. They attach themselves, without doubt, to those minute particles which, scarcely visible in ordinary light, appear as motes in the sunbeam, or in the beam of the electric lamp. It is by the agency of these particles that they are conveyed from place to place.

Notwithstanding that the word bacterium means a rod, and that many of the forms to be immediately referred to are not rod-like, I am obliged to use it, because it is used by others as a general term for the whole group of organisms known to botanists as *Schizomycetes*. This designation being obviously too long, I attempted, in 1870, to introduce the word *microzymes*, a word which was intended to denote the fact that, in the development of these organisms, the process of vegetation is always associated with chemical processes of a peculiar kind, in a way comparable to that in which the vegetation of the yeast plant is associated with the alcoholic fermentation. I forego the use of the word microzyme, for the reason I have mentioned, viz., that it has not been taken to, but I am not the less sensible that such a word is as much needed now as ever; for it is evidently inconvenient to say, as I now find myself compelled to say, that bacteria—rods—may be either globular, egg-shaped, or filamentous. Cohn classifies our organisms under terms expressive of these various forms, the most important being *micrococcus*, *bacterium*, *vibrio*, and *spirillum*. I have drawn these on the blackboard.

Bacteria have, as a rule, two states of existence, a state of activity and a state of rest. When a liquid teeming with bacteria in the active state is observed under the microscope, the attention is so riveted, that it is an effort to take away the eye from the instrument. The movements have been often described. In the case of rod-shaped bacteria, the axial movement, in which the rod advances or retreats in the line of its axis, the direction being frequently reversed, is the most common. This kind of locomotion occurs often by fits and starts, the body remaining in the intervals quite still, or assuming a pirouetting or spinning movement. In all rod-like bacteria, it is probable that the progressive or axial movement is associated with rotation, for, in observing the motion of vibrios, it is easy to see that they, in progressing, twist round the axis of the spiral. When this is the case, it looks as if the filament were executing a wriggling motion, i. e., as if its body were contractile; but this is obviously deceptive. The mechanism of the motion is as little understood as those of *Oscillatoria*, which it closely resembles. It must be carefully distinguished from the passive motions which are exhibited by all particles of size comparable to that of bacteria, when suspended in a liquid of which the density does not differ very widely from their own. Certain forms of bacteria appear to be motionless in all stages of their existence.

TREATMENT OF MAMMITIS.

The following discussion at the Obstetrical Society

of London, reported in the *Medical Times and Gazette*, contains a number of useful points.

Dr. W. Bathurst Woodman had been struck with the rarity of mammary abscess in animals, notwithstanding the forced abstinence from suckling which cats and dogs undergo from the drowning of their progeny, and in spite of the great distention of the udders of cows, mares, and other animals when driven to market, or for other reasons separated from their young. Acting upon this suggestion, he carefully abstained from those manipulations and questionable "gentle" frictions which have so long been customary in such cases, and with the most satisfactory results. Where an abscess was threatening, in place of employing liniments he enjoined perfect rest, the avoidance of all frictions and rough handling, and of suckling for a time, if possible, from both breasts, but at all events from the one most implicated; the horizontal position, careful application of strips of isinglass, soap, or lead plaster, or of an air cushion with a hole in its centre, or of bandages taking their purchase from the opposite shoulder. In addition to these measures he employed preparations of opium, belladonna, or chloroform, applied in compresses, or ice, moist warmth, and leeches; the local congestion being also relieved by diaphoretics, diuretics, and aperients; belladonna, iodide of potassium, and sedatives being given, if requisite. Illustrative cases of this method of treatment were given, exemplifying its advantages.

Dr. Barnes observed that the principle of rest had long been applied to the treatment of inflammation of the breast. He himself had learned the value of it from Trousseau, when a student in Paris, thirty years ago. That admirable physician taught and illustrated it with great earnestness. He placed the breast at perfect rest by carrying straps of leather spread with pith (*emplâtre de vig*) all round it, so as to lift it well up and exert constant support on the vessels. Thus œdema was prevented, and engorgement soon subsided. It must, however, be remembered that this form of pressure was ill borne in the first inflammatory stage. It was chiefly serviceable when suppuration had taken place and the abscess had been opened; the sac was then rapidly closed. In the earlier stage he had seen leeches do excellent service. The pressure then must be lighter.

Dr. Ashburton Thompson said there were two modes of treatment not referred to in the paper, the administration of tincture of aconite, and total abstinence from fluids during the necessary number of days. By giving minim doses of aconite every hour he had succeeded in cutting short inflammations of the breast which there was no doubt would otherwise have run on to suppuration very frequently; indeed, in three cases out of four. In cases of stillbirth he had hitherto found abstinence from fluids sufficient in every case to avoid every kind of mammary disturbance. Ice was allowed in moderate quantity, and no other fluid, from the time of delivery until the fourth or fifth day, when the breasts generally return to their normal state of quiescence. He had had two cases recently in which this method of treatment