

the "bacillus anthracis," Pasteur also discovered the microbe of septicæmia and that of cholera of fowls. The micro-organism of the latter disease was cultivated in a special *bouillon* made with hen's muscles and Pasteur demonstrated that when these media of culture were old, instead of producing, by inoculation, the death of the animal, they would give him a transient affection only, but these fowls so inoculated were by the fact preserved from the disease and would resist inoculation made with a very virulent liquid. It was, we may say, the greatest discovery of this century: that of attenuation of virus, and it was in the midst of the applause of the whole world congregated in London at the International Congress of 1881, that Pasteur pronounced the following words: "I have lent to the expression of vaccination an extension which science, I hope, will sanction as an homage paid to the immense services rendered to humanity by one of the greatest savans of England, Jenner."

All these unexpected results produced a general emotion amongst scientists. It was like a revelation; they felt that we were on the eve of discoveries which would very soon teach us the nature of all virulent diseases as well as the vaccine to oppose to each of them. Several biologists, carried on the wings of those dreams of glory for them and of triumph for science, went to work in search of new organisms, studying in the same time new cultures. Laborious seekers directed their investigations towards diseases the causes of which had been so far unknown and succeeded in surprising amongst microscopical organisms more than one malefactor of which science had not, till then, even suspected the existence.

The vast importance attached to the knowledge of micro-organisms in science could not but attract the attention upon the origin of microbes in general. Whence came these microbes? This question, a problem as old as the world, aroused anew and divided scientific men.

Can a being be born without parents? Does spontaneous generation exist?

These minute organisms which are found under the microscope in a drop of infected blood, where were they before they showed themselves there? Have they spontaneously originated in Robin's blastema, or do they come from Bechamp's eternal microzimas? Or again, according to Helmholtz'

theory of cosmical organic germs, have they fallen from some planets, being carried away by one of the innumerable meteors which detach from them to travel across the space?

Eternal hypothesis of the origin of life! Mysterious problems, with their solutions apparently always at hand, and still for ever receding! Suffice it to say, that Pasteur, by his memorable experiments, has succeeded in thoroughly annulling the objections of the partisans of spontaneous generation. He successfully demonstrated that the germs of our diseases are profusely diffused in the air; *quærens quem devoret*, and waiting for favorable circumstances to develop themselves.

Our eyes cannot perceive these small organisms which swarm by millions in the atmosphere. We take our leisure by walking out in the country, fancying we breathe but pure air and sweet scent of flowers. Alas, what a delusion! According to Miquel, in the open fields, where the atmosphere seems so limpid, there are, mixed with pollen and the remains of plants, 30 to 40 micro-organisms by cubic meter of air. In our cities, in our houses, how much greater still is their number. They lie everywhere; our clothes, our furniture, our books, the walls, the hangings of our houses are covered with them. The water we use for our ablutions, the water which purifies, as we fancy, the things it washes, the water we drink, how many microbes does it not contain and nourish! Miguel has demonstrated that a single glass of Seine water contained 300,000 microbes.

Evidently, all these micro-organisms are not malefactors; many of them are, on the contrary, for us very useful auxiliaries. Others are quite harmless or indifferent. But mixed with these inoffensive germs there exists around us an immense quantity of them which are formidable. Such are the germs of infectious and contagious diseases, especially during epidemics.

If then we are surrounded by injurious microbes, if, moreover, as it has been demonstrated by several biologists, we conceal some of them within our body in the normal condition, as for instance, the pneumococcus of pneumonia, and the streptococcus of erysipelas, how is it that we so often and so generally escape their harm? Who, or what then protects us from maladies it is their mission to determine in living tissues? Ah! it is that the microbe, however powerful it may be,