Furthermore, the Euglena will increase in size ; but this increase is by no means unlimited as the increase of a crystal might be. After it has grown to a certain extent it divides, and each portion assumes the form of the original, and proceeds to repeat the process of growth and division.

Nor is this all. For after a series of such divisions and sub-divisions, these minute points assume a totally new form, lose their long tails—round themselves, and secrete a sort of envelope or box, in which they remain shut up for a time, eventually to resume, directly or indirectly, their primitive mode of existence.

Now, so far as we know, there is no natural limit to the existence of the Euglena, or of any other living germ. A living species once launched into existence tends to live for ever.

Consider how widely different this living particle is from the dead atoms with which the physicist and chemist have to do !

The particle of gold falls to the bottom and rests—the particle of dead protein decomposes and disappears—it also rests : but the *living* protein mass neither tends to exhaustion of its forces nor any permanency of form, but it is essentially distinguished as a disturber of equilibrium so far as force is concerned,—and as undergoing considerable metamorphosis and change in point of form.

Tendency to equilibrium of force and to permanency of form, then, are the characters of that protein of the universe which does not live—the domain of the chemist and physicist.

Tendency to disturb existing equilibrium—to take on forms which succeed one another in definite cycles—is the character of the living world.

What is the cause of this wonderful difference between the dead particle and the living particle of matter appearing in other respects identical ? that difference to which we give the name of *Life* ? I, for one, cannot tell you. It may be that by and by, philosophers will discover some higher laws of which the facts of life are particular cases—very possibly they will find out some bond between physico-chemical phenomena on the one hand, and vital phenomena on the other. At present, however, we assuredly know of none ; and I think we exercise a wise humility in confessing that for us, at least, this successive assumption of different states (external conditions remaining the same)—this *spontaneity of action*—if I may use a term which implies more than I would be answerable for—which constitutes so vast and plain a practical distinction between living bodies and those which do not live, is an ultimate fact ; indicating as such, the existence of a broad line of demarcation between the subject-matter of Biological and that of all other science.

For I would have it understood that this simple Euglena is the type of all living things, so far as the distinction between these and inert matter is concerned. That cycle of changes which is constituted by not more than two or three steps in the Euglena, is as clearly manifested in the multitudinous stages through which the germ of an oak or of a man passes. Whatever forms the Living Being may take on, whether simple or complex, *production*, *growth*, *reproduction*, are the phenomena which distinguish it from that which does not live.