

by the growing disbelief in spontaneous generation, which dates from Redi's experiments (1626-97).

(3.) The third period, which practically dates from the establishment of the doctrine of the conservation of energy, is marked by the realization of the organism's complete dependence upon its environment, and by the disappearance of the doctrine of a special vital force. But although a conviction has grown that the living and the not-living differ in degree rather than in kind, it is confessed by those who are frank that the secret of the synthesis which is expressed in living matter or in the organism remains undiscovered.

To the careless, it may seem that nothing could be easier than to distinguish the living organism from its non-animate physical surroundings. But is there anything more difficult?

Are we inclined to lay emphasis on form and structure? Then we recall the exquisite beauty of some dendritic minerals and the formlessness of the amœba, the complexity of many crystals and the apparent simplicity of a slime fungus.

Or is it the power of *growth* that impresses us as characteristic of the organism? What then of the inorganic crystal which grows beautifully under our eyes? Or if it is development, the passing from stage to stage, that characterizes life, what then of the vapour that passes into the form of a snow-flake which is dissolved again into water.

Is the organism a material system, with the power of changing matter and energy from one form to another and doing work thereby? But so, in truth, is the steam-engine.

Is it the power of movement that we would emphasize as characteristic of life? What then of the fragment of potassium darting hither and thither on the surface of the water?

Is it irritability that characterizes life? But what is irritability but the power of responding to stimulus, and surely even the barrel of gunpowder will do that?

Nor is any chemical characteristic of the living organism at first sight apparent. It is certain that there is

The Organ-  
ism and the  
Inorganic  
World.