

Creator, by whom all the parts of nature were fitted to their uses and to each other, this is what we might expect and can understand. On any other supposition such a fact appears altogether incredible and inconceivable.

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### CHAPTER III.

#### *The Mass of the Earth.*

WE shall now consider the adaptation which may, as we conceive, be traced in the amount of some of the quantities which determine the course of events in the organic world; and especially in the amount of the *forces* which are in action. The life of vegetables and animals implies a constant motion of their fluid parts, and this motion must be produced by forces which urge or draw the particles of the fluids. The positions of the parts of vegetables are also the result of the flexibility and elasticity of their substance; the voluntary motions of animals are produced by the tension of the muscles. But in all those cases, the effect really produced depends upon the force of gravity also; and in order that the motions and positions may be such as answer their purpose, the forces which produce them must have a due proportion to the force of gravity. In human works, if, for instance, we have a fluid to raise, or a weight to move, some calculation is requisite, in order to determine the power which we must use, relatively to the work which is to be done: we have a mechanical problem to solve, in order that we may adjust the one to the other. And the same adjustment, the same result of a comparison of quantities, manifests itself in the relation which the forces of the organic world bear to the force of gravity.