

the positions of leaves and of branches. Such again those parts of the vegetable constitution which have reference to the pressure of the atmosphere; for differences in this pressure appear to exercise a powerful influence on the functions of plants, and to require differences of structure. But we pass over these considerations. The slightest attention to the relations of natural objects will show that the subject is inexhaustible; and all that we can or need do is to give a few examples, such as may show the nature of the impression which the examination of the universe produces.

3. Another instance of the adjustment of organic structure to the force of gravity may be pointed out in the muscular powers of animals. If the force of gravity were increased in any considerable proportion at the surface of the earth, it is manifest that all the swiftness, and strength, and grace of animal motions must disappear. If, for instance, the earth were as large as Jupiter, gravity would be eleven times what it is, the lightness of the fawn, the speed of the hare, the spring of the tiger, could no longer exist with the existing muscular powers of those animals; for man to lift himself upright, or to crawl from place to place, would be a labour slower and more painful than the motions of the sloth. The density and pressure of the air too would be increased to an intolerable extent, and the operation of respiration, and others, which depend upon these mechanical properties, would be rendered laborious, ineffectual, and probably impossible.

If, on the other hand, the force of gravity were much lessened, inconveniences of an opposite kind would occur. The air would be too thin to breathe; the weight of our bodies, and of all the substances surrounding us, would become too slight to resist the perpetually occurring causes of derangement and unsteadiness: we should feel a want of ballast in our movements.

It has sometimes been maintained by fanciful the-